ORDER NO. MB9303041C2

Service Manual

Compact Disc Player

SL-PS740A

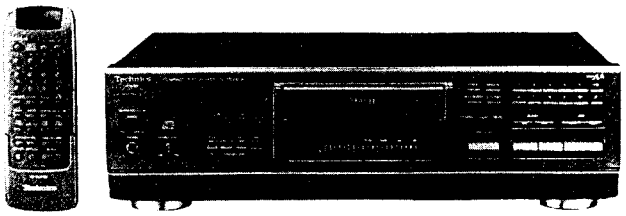
COMPACT disc DIGITAL AUDIO

DIGITAL

MASH* multi-stage noise shaping

Colour

(K)	Black Type



Areas

Suffix for Model No.	Area	Colour
(E)	Europe	(K)
(EB)	Great Britain	
(EG)	Germany and Italy	

*
- Technics (or Panasonic) developed the world's first MASH type DAC and ADC. MASH technology was invented by NTT (LSI Labs).
- MASH is a trademark of NTT.

SL-PG320A TRAVERSE DECK SERIES (RAD0301-1)

SPECIFICATIONS

■ Audio

No. of channels	2 (left and right, stereo)
Frequency response	2–20,000 Hz, ±0.3 dB
Output voltage	2 V (at 0 dB)
Dynamic range	100 dB
S/N	115 dB
Harmonic distortion	0.0018% (1 kHz, 0 dB)
Total harmonic distortion	0.0023% (1 kHz, 0 dB)
Wow and flutter	Below measurable limit
DA converter	MASH (1 bit)
Output impedance	600Ω
Load impedance	More than 10 kΩ
Headphone output level	15 mW max. 32Ω (adjustable)

■ Pickup

Wavelength	780 nm
Laser Power	No hazardous radiation is emitted (with safety protection)

■ General

Power consumption	10 W
Power supply	AC 50/60 Hz, 230–240 V
Dimensions (W×H×D)	430×125×289 mm
Weight	4.6 kg

Notes:

1. Specifications are subject to change without notice.
2. Weight and dimensions shown are approximate.

Technics

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■ HANDLING PRECAUTIONS FOR TRAVERSE DECK

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

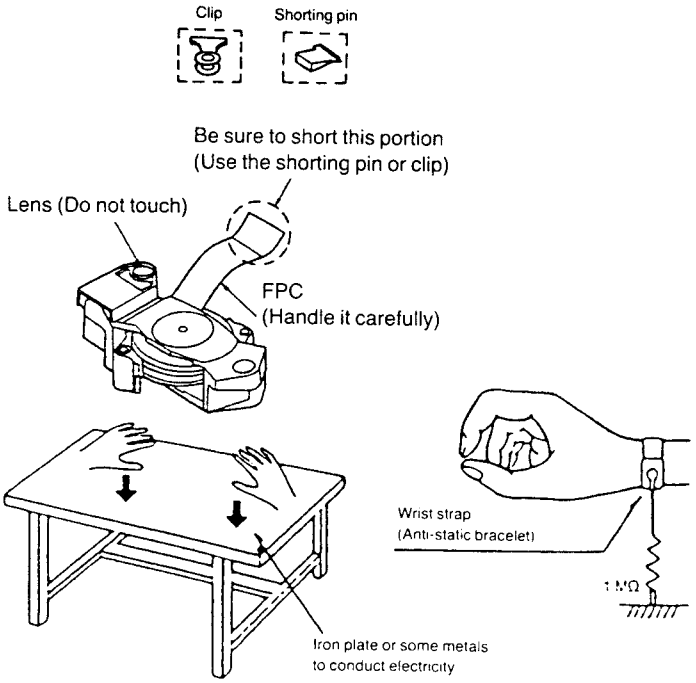
•Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FPC board). When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).

•Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).



■ PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780 nm
Maximum output radiation power from pick up: 100 μW/VDE

Laser radiation from the pick up unit is safety level, but be sure the followings:

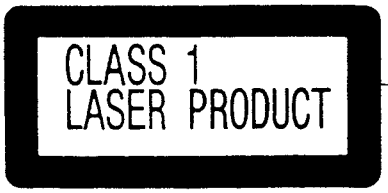
1. Do not disassemble the optical pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not lock at the focus lens using optical instruments.
4. Recommend not to lock at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

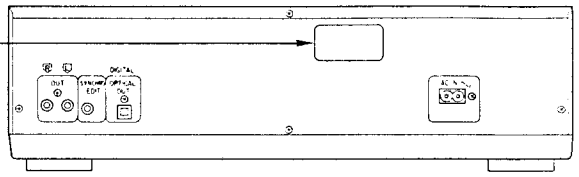
Wellenlänge: 780 nm
Maximale strahlungsleistung der laserinhelt: 100 μW/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

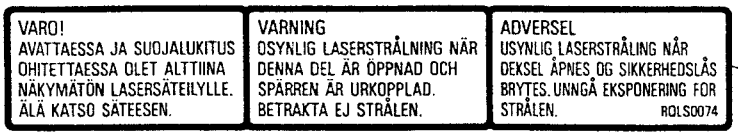
1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefähriich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.

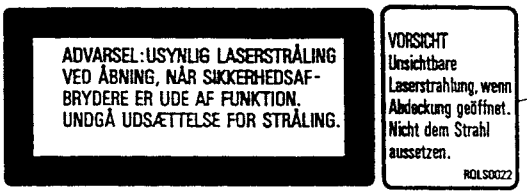


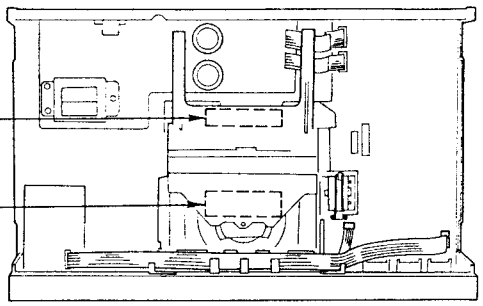
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT



(Rear View)


VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEN.
VARNING
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.
ADVERSEL
USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
RQLS0074


ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT
Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen.
RQLS0022

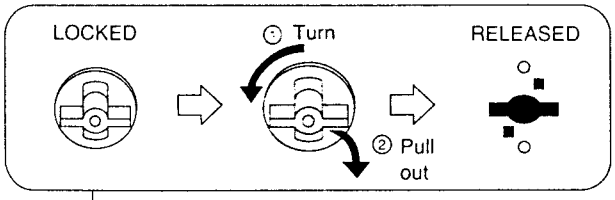


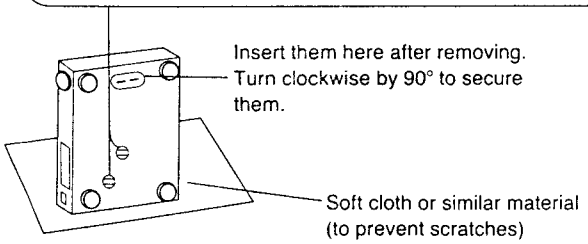
(Top View)

■ INSTALLATION

Before placement

Two transport security devices are secured to prevent the optical pickup from damage during transport.
Be sure to release them before use.




Insert them here after removing.
Turn clockwise by 90° to secure them.
Soft cloth or similar material (to prevent scratches)

Note:
When transporting the unit, be sure to remove the compact disc from inside the unit. And replace the transport security devices again following the reverse order not to damage the optical pickup.

Notes of placement

■ **This unit is a precision instrument. Be sure to place it on a flat surface.**

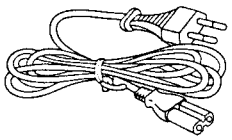
■ **Avoid places such as the following:**
- Near any equipment or device that generates strong magnetism.
- On any heat-generating equipment or device, or in any place where the temperature is high (35°C or higher).
- Extremely cold place (5°C or below).
- Near a tuner or TV. (It may cause noise in the broadcast, or disturbance of the TV picture.)

■ **When carrying or storing the unit, handle it with care so it is not subjected to any strong bumps.**
Always remove the disc before storing the unit for any period of time.

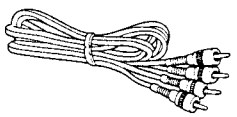
■ **To avoid problems due to vibration**
- Do not place a book or similar object under this unit.
- Do not route the connection cables (of this or other units) across the operation panel, across the top, or under the unit.

■ ACCESSORIES

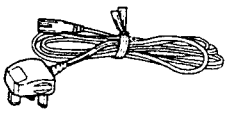
Note:
The configuration of the AC power supply cord differs according to area.



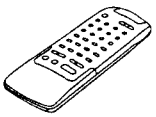
AC power supply cord
for (E) and (EG) areas...(RJA0019-2K) 1



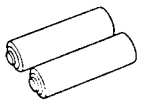
Stereo connection cable
(SJP2249-3) 1



for (EB) area...(VJA0733) 1



Remote control transmitter
(EUR642100) 1



Batteries
UM-4 (AAA, R03) 2
for remote control transmitter

Note:
These are available on sale route.

■ CAUTION FOR AC MAINS LEAD

(For United Kingdom)

("EB" area code model only)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ⟨ASTA⟩ or the BSI mark ⟨BSI⟩ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

CAUTION!
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT

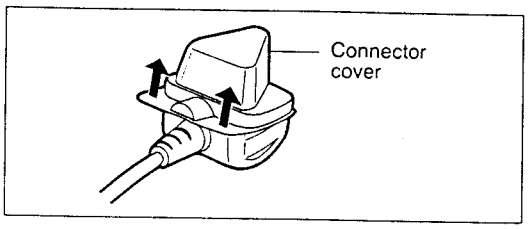
The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral, Brown: Live.
As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR GREEN/YELLOW.

THIS PLUG IS NOT WATERPROOF—KEEP DRY.

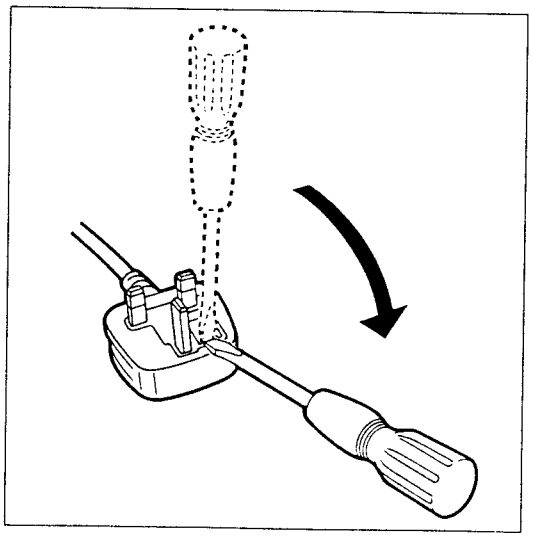
Before use

Remove the connector cover as follows.

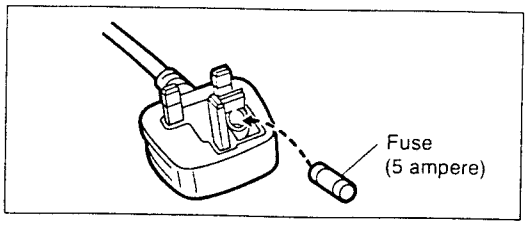


How to replace the fuse

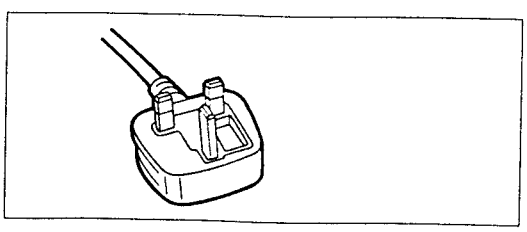
1. Open the fuse cover with a screwdriver.



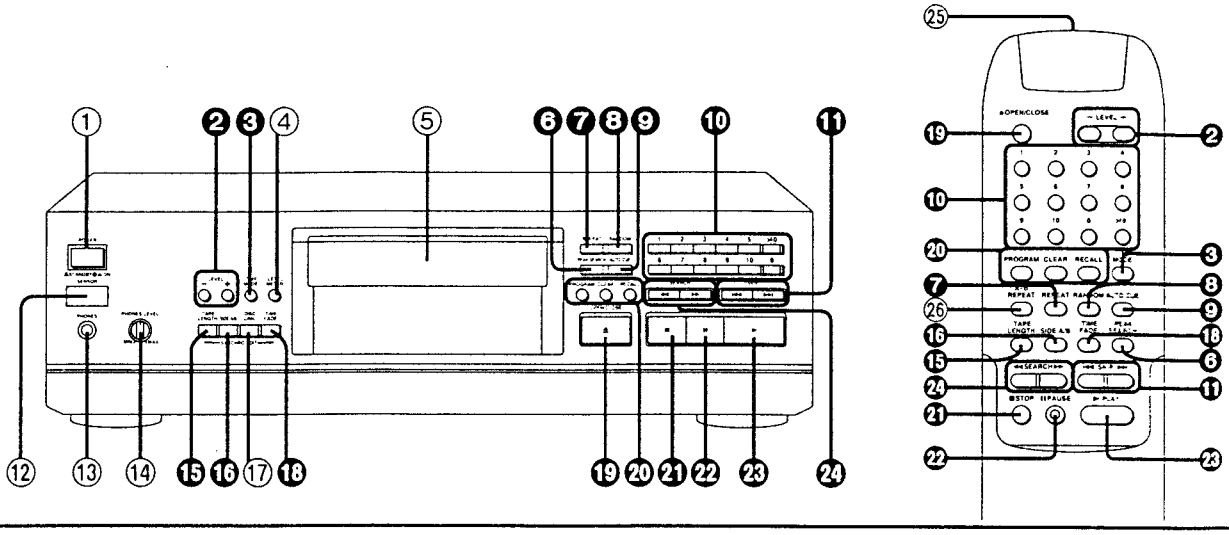
2. Replace the fuse.



3. Close the fuse cover.



■ LOCATION OF CONTROLS



Control section

Numbers with black background (for example ❷) indicate functions available on the remote control.

① **Power "STANDBY ⏻/ON" switch (POWER, ▮ STANDBY ⏻ ▁ ON)**
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.

❷ **Level control buttons (– LEVEL +)**

❸ **Time mode select button (TIME MODE)**

④ **Output level meter on/off button (LEVEL METER)**

⑤ **Disc tray**

❻ **Peak search button (PEAK SEARCH)**

❼ **Repeat button (REPEAT)**

❽ **Random play button (RANDOM)**

❾ **Auto cue button (AUTO CUE)**

❿ **Numeric buttons (1–10, >10, 0)**

⓫ **Skip buttons (|◀◀, ▶▶| SKIP)**

⑫ **Remote control signal sensor (SENSOR)**

⑬ **Headphones jack (PHONES) (∅6, 32Ω)**

⑭ **Headphones volume control (PHONES LEVEL)**

⓯ **Tape length button (TAPE LENGTH)**

⓰ **Tape side select button (SIDE A/B)**

⑰ **Disc link button (DISC LINK)**

⓲ **Time fade button (TIME FADE)**

⓳ **Disc tray open/close button (▲ OPEN/CLOSE)**

⓴ **Buttons for program function**
- **Program button (PROGRAM)**
- **Clear button (CLEAR)**
- **Recall button (RECALL)**

㉑ **Stop button (■)**

㉒ **Pause button (❚❚)**

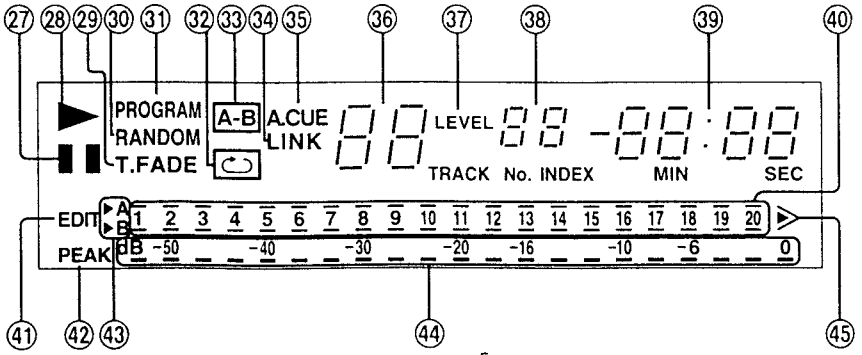
㉓ **Play button (▶)**

㉔ **Search buttons (◀◀, ▶▶ SEARCH)**

Remote control section

㉕ **Remote control transmission window**

㉖ **A-B repeat button (A-B REPEAT)**



Display section

㉗ Pause indicator (❚❚)

㉘ Play indicator (▶)

㉙ Time fade/fade out indicator (T.FADE)

㉚ Random play indicator (RANDOM)

㉛ Program indicator (PROGRAM)

㉜ Repeat indicator (⟲)

㉝ A-B repeat indicator (A-B)

㉞ Disc link indicator (LINK)

㉟ Auto cue indicator (A.CUE)

㊱ Track number display

㊲ Level control indicator (LEVEL)

㊳ Index/program sequence display

㊴ Time display

㊵ Track number indicator (1 – 20)

㊶ Compact disc edit indicator (EDIT)

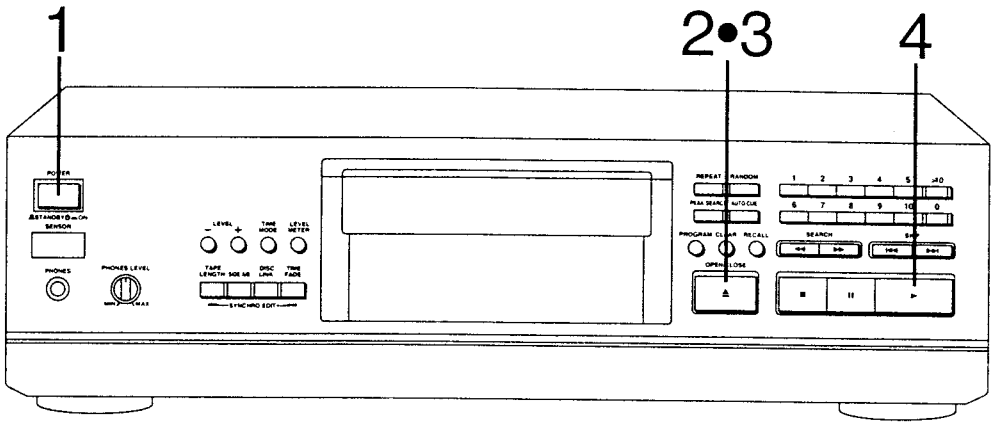
㊷ Peak search indicator (PEAK)

㊸ Tape side indicator (▶A , ▶B)

㊹ Output level indicator (dB)

㊺ "Over" mark (⩥)

■ BASIC OPERATING PROCEDURE

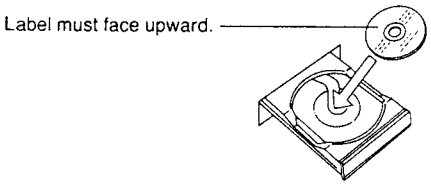


1 Press POWER to switch on the power.

If there is a disc in the disc tray, play will start from the first track.

2 Press open/close button ⏏ to open the disc tray and insert a disc.

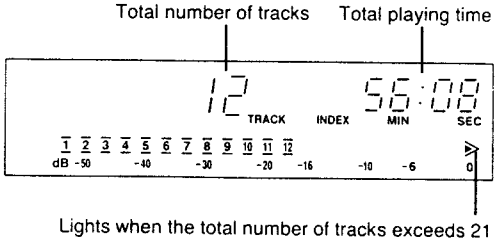
(Also available from the remote control)



Before attempting to use the remote control transmitter to open the disc tray, make sure that there are no obstructions in front of the unit.

3 Press open/close button ⏏ again to close the disc tray.

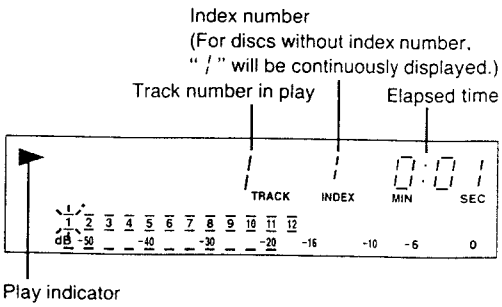
(Also available from the remote control)



- The total playing time displayed includes the silent sections between tracks. For this reason, it may be a few seconds longer than the playing time indicated on the disc.
- You can skip this step and press play button ▶. The disc tray will be automatically closed and then play will start from the first track.

4 Press play button ▶.

(Also available from the remote control)

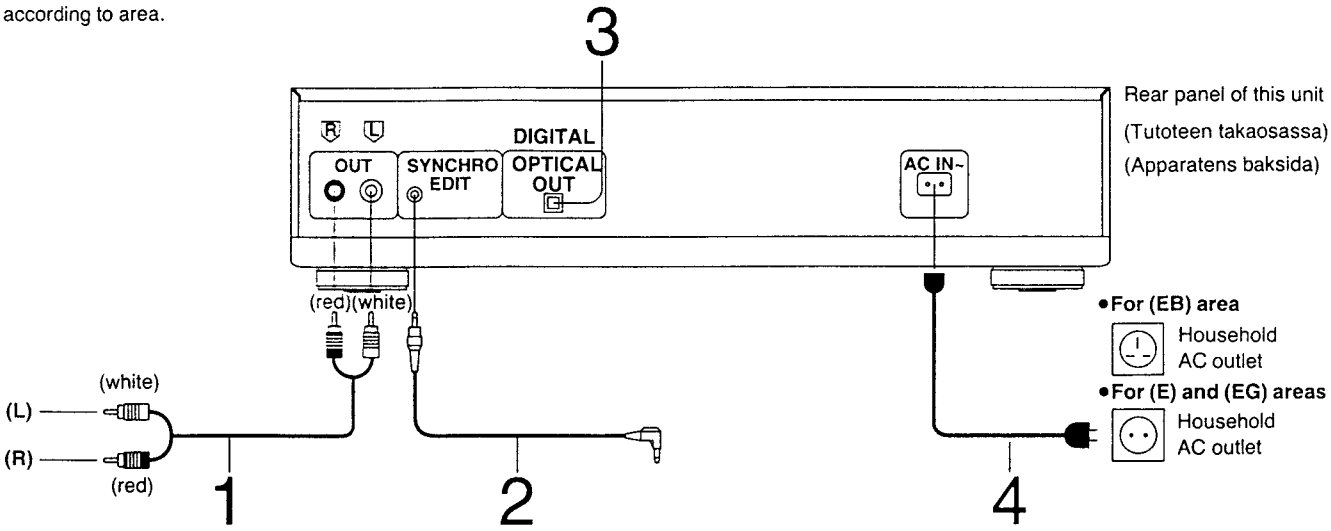


The unit stops automatically when the last track finishes playing.

■ CONNECTIONS

Before making connections, be sure that the power of this unit and all other system components is first turned off.
See the operating instructions of the amplifier or the cassette deck for details.

Note:
The configuration of the AC outlet and AC power supply cord differs according to area.



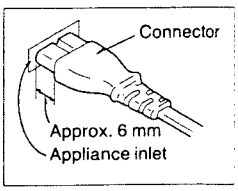
1 **Connect the stereo connection cable (included) to the "CD" or "AUX" terminals of the amplifier.**

2 **Connect the synchro edit cable (included with the cassette deck) to the "SYNCHRO EDIT" terminal of the Technics cassette deck which is equipped with the synchro edit function.**

3 **Connect the optical-fiber cable (not included) to the "DIGITAL INPUT" terminal of the amplifier.**
This terminal can be used for connection with other equipment that has a digital input terminal. such as and amplifier, by using an optical-fiber cable (not included). A dust-protection cap is inserted in this terminal. Remove this cap only when a connection is to be made to this terminal.

FOR UNITED KINGDOM ONLY
BE SURE TO READ THE CAUTION FOR AC POWER SUPPLY CORD ON PAGE 3 BEFORE PROCEEDING TO STEP 4.

4 **Connect the AC power supply cord (included) to the "AC OUTLET" of the amplifier or the household AC outlet.**
Insertion of Connector
Even when the connector is perfectly inserted, depending on the type of inlet used, the front part of the connector may jut out as shown in the drawing.
However there is no problem using the unit.

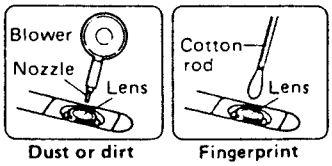


■ CLEANING OF LENS

If the lens is stained causing sound skip or operation failure, open the top cover by pressing the open button, and clean the lens.

- **To remove dust or dirt**

Blow the lens with the blower provided in the cleaning kit to remove dust or dirt.

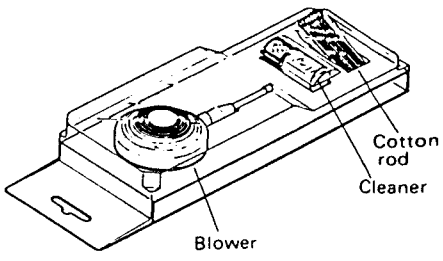


- **To remove fingerprint**

If the blower is not enough, moisten the cotton rod with the lens cleaner solution and wipe the lens with it from center of the lens to outside.

Cautions:
- Do not directly apply the cleaner solution to the lens. Do not apply too much solution to the cotton rod or otherwise the solution will flow into the player.
- Wipe the lens carefully. Do not give too much stress to the lens or otherwise it may scratch the lens or cause optical pickup trouble.
- If the solution should be too much applied, wipe the lens with a dry cotton rod.

Lens cleaning kit (Part No. : SZZP1038C)

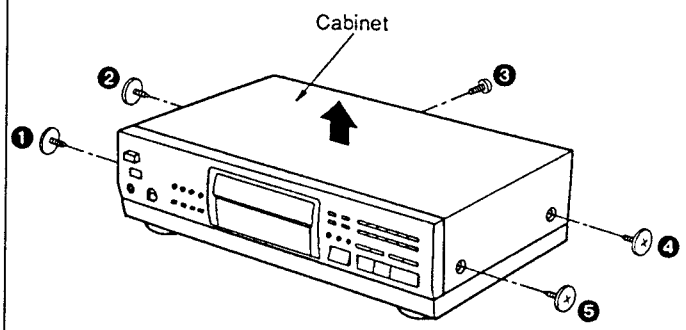


■ DISASSEMBLY INSTRUCTIONS

Warning: This product uses a laser diode. Refer to caution statements on page 2.
ACHTUNG: Die lasereinheit nicht zerlegen.
Die lasereilnheit dart nur gegen eine vom hersteller speziferte einheit ausgetauscht werden.
"ATTENTION SERVICER" Some chassis components may have sharp edges. Be careful when disassembling and servicing.

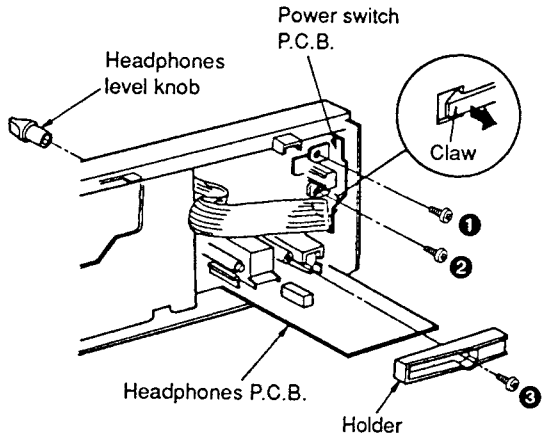
***This CD player is equipped with FPC boards, so handle them with care during disassembly and reassembly.**

Ref. No. 1	Removal of the cabinet
Procedure 1	



• Remove the 5 screws (❶~❺).

Ref. No. 3	Removal of the power switch P.C.B. and headphones P.C.B.
Procedure 1→2→3	



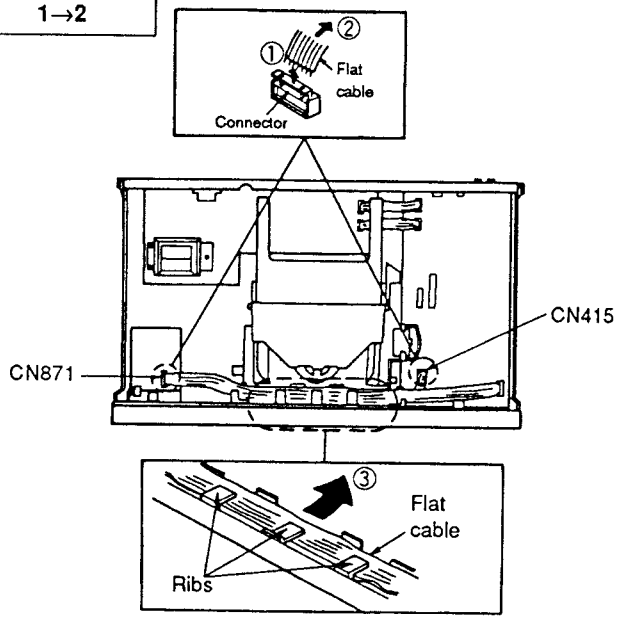
■ Removal of the power switch P.C.B.

1. Remove the 2 screws (❶, ❷).
2. Release the 1 claw.

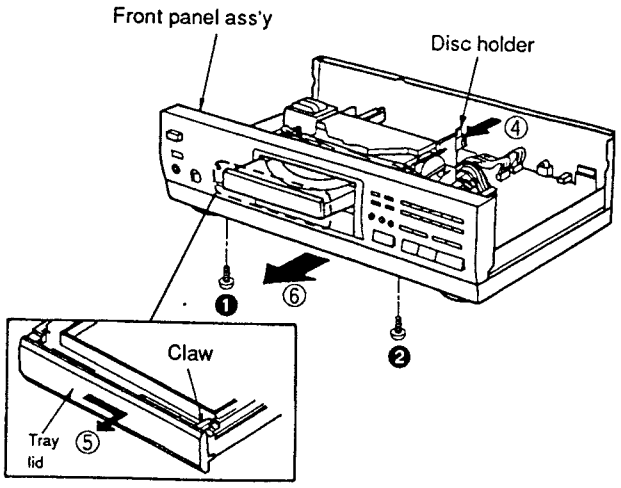
■ Removal of the headphones P.C.B.

1. Pull out the headphones level knob.
2. Remove the 1 screw (❸).
3. Remove the holder.

Ref. No. 2	Removal of the front panel ass'y
Procedure 1→2	



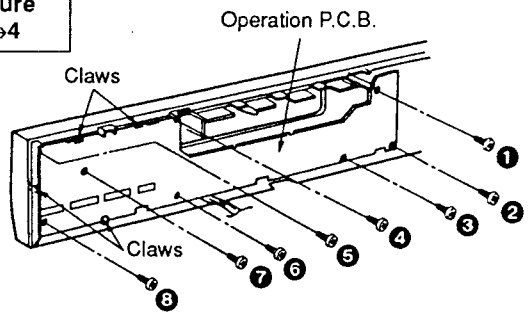
1. Remove the 2 connectors (CN415, CN871).
2. Remove the flat cable in the direction of arrow ③.



[Rear side]

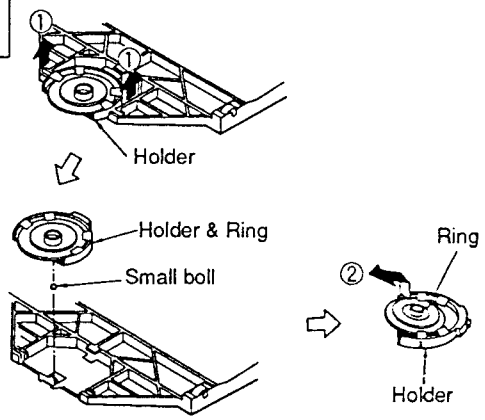
3. Push the disc holder slowly in the direction of arrow ④.
4. Release the 1 claw and then remove the tray lid in the direction of arrow ⑤.
5. Remove the 2 screws (❶, ❷).
6. Remove the front panel ass'y in the direction of arrow ⑥.

Ref. No. 4	Removal of the operation P.C.B.
Procedure 1→2→4	



1. Remove the 8 screws (❶~❽).
2. Release the 4 claws.

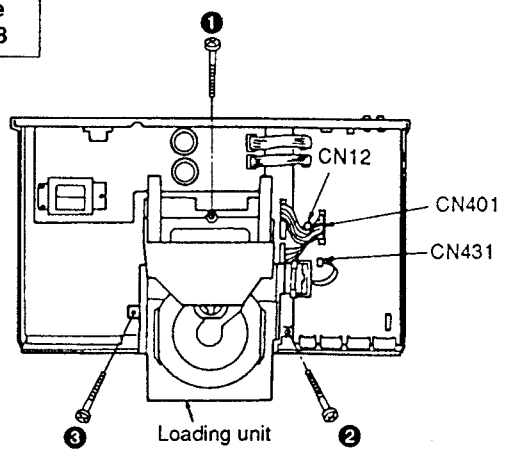
Ref. No. 6	Removal of the holder and ring
Procedure 1→5→6	



1. Pull out the holder in the direction of arrow ①.
2. Remove the ring in the direction of arrow ②.

Caution: Be sure to handle the small ball carefully.

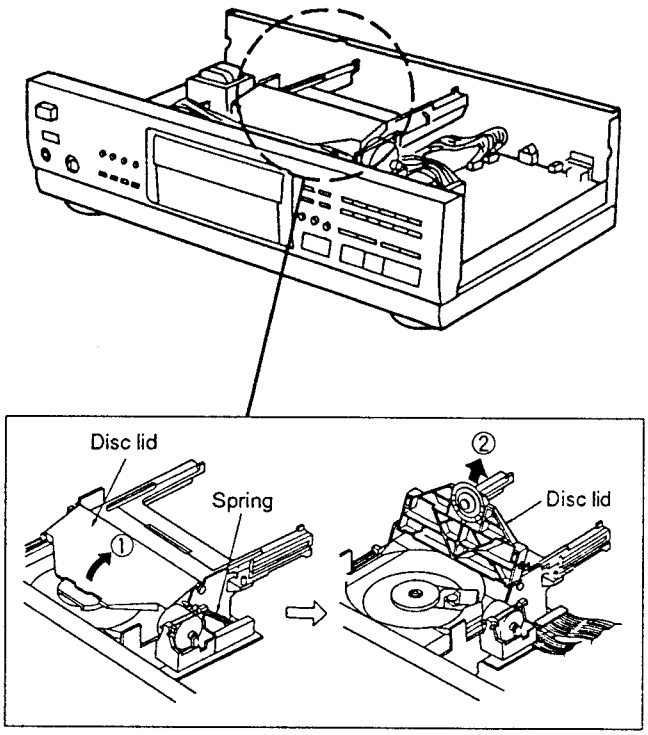
Ref. No. 8	Removal of the loading unit
Procedure 1→2→5→8	



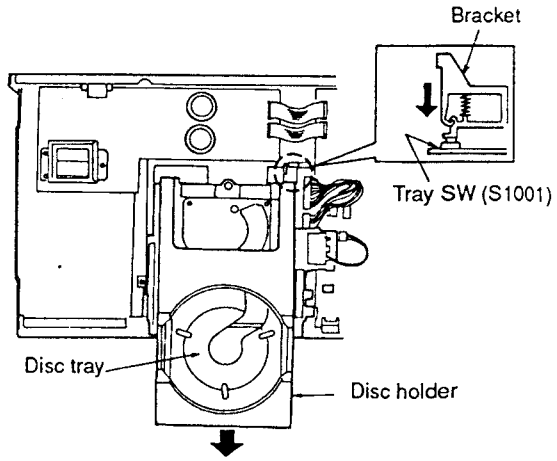
1. Remove the 3 screws (❶~❸).
2. Remove the 3 connectors (CN12, CN401, CN431).

Ref. No. 5	Removal of the disc lid
Procedure 1→5	

1. Remove the spring.
2. Move the disc lid in the direction of arrow ① and pull out this in the direction of arrow ②.

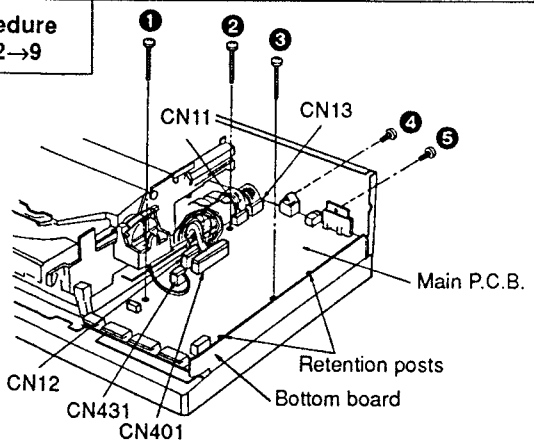


Ref. No. 7	Removal of the disc holder
Procedure 1→2→5→7	



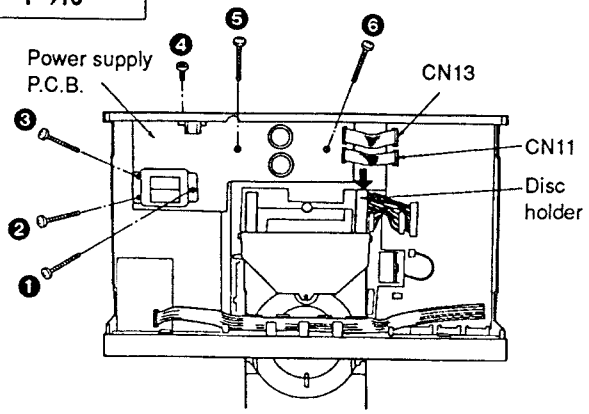
1. Pull the disc holder slowly in the direction of arrow until the disc tray comes up.
2. Pull the disc holder until it stops.
3. Push the bracket of tray SW (S1001) in the direction of arrow.
4. Pull out the disc holder further to remove it.

Ref. No. 9	Removal of the main P.C.B.
Procedure 1→2→9	



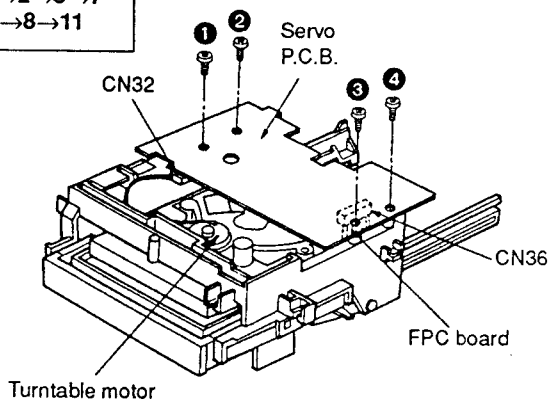
1. Remove the 5 screws (❶~❺).
2. Remove the 5 connectors (CN11, CN12, CN13, CN401, CN431).
3. Lift the main P.C.B. off the retention posts on the bottom board.

Ref. No. 10	Removal of the power supply P.C.B.
Procedure 1→10	



1. Push the disc holder slowly in the direction of arrow.
2. Remove the 6 screws (❶~❻).
3. Remove the 2 connectors (CN11, CN13).

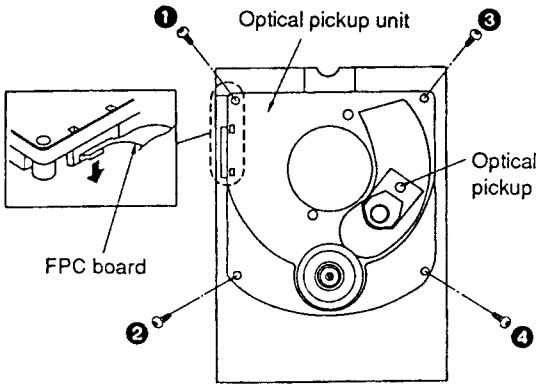
Ref. No. 11	Removal of the servo P.C.B.
Procedure 1→2→5→7 →8→11	



1. Remove the 4 screws (❶~❹).
2. Remove the FPC board (CN36) from the servo P.C.B..
3. Remove the 1 connector (CN32) of the turntable motor.

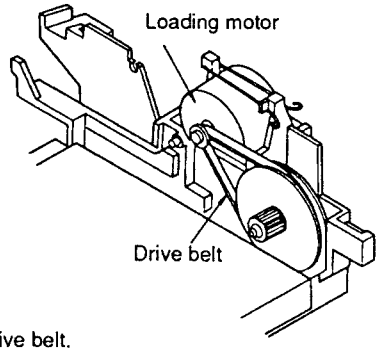
Caution: To prevent the breakdown of the laser diode, antistatic shorting pin is inserted into the FPC board.

Ref. No. 12	Removal of the optical pickup unit
Procedure 1→2→5→7 →8→11→12	

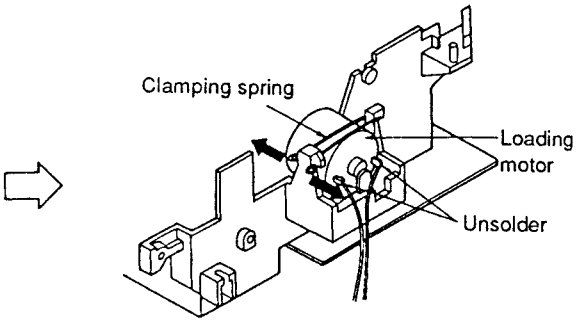


1. Remove the 4 screws (❶~❹).
2. Remove the FPC board from the optical pickup.

Ref. No. 13	Removal of the loading motor
Procedure 1→2→5→7 →13	

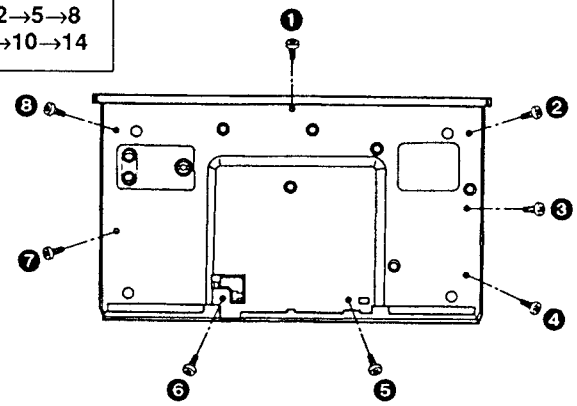


1. Remove the drive belt.

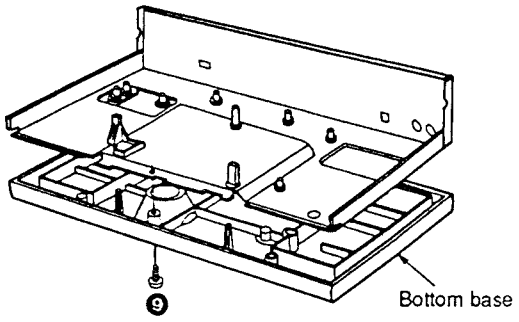


2. Release the clamping spring.
3. Unsolder the 2 terminals of the lead wire of the loading motor.

Ref. No. 14	Removal of the bottom base
Procedure 1→2→5→8 →9→10→14	



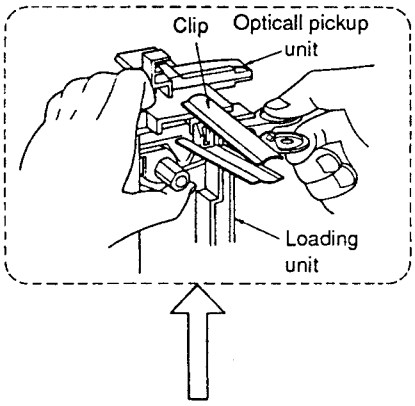
1. Remove the 8 screws (❶~❽).

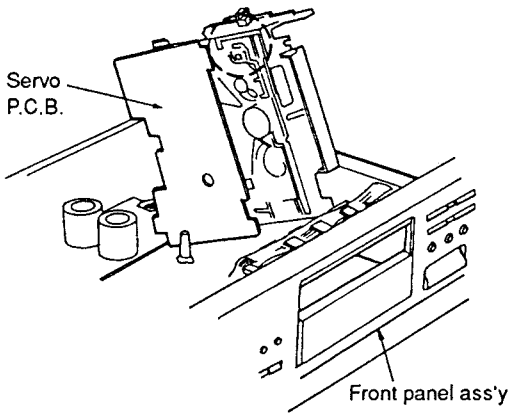


2. Remove the 1 screw (❾).
3. Remove the bottom base.

■ CHECKING OF THE SERVO P.C.B.

1. Remove the cabinet (see Ref. No.1 of the disassembly instructions).
2. Remove the disc lid and disc holder (see Ref. No. 5 and No. 7 of the same).
3. Remove the loading unit (see Ref. No. 8 of the same).
4. When checking the soldered surface of the servo P.C.B. and replacing the parts, do as shown below.



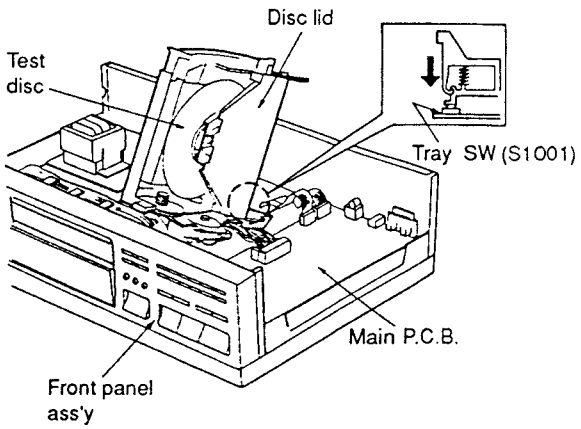


(To play a disc)

1. Place the test disc.
2. Reinstall the disc lid to the loading unit.
3. Turn "ON" the power switch of the player.
4. Push the bracket of tray SW (S1001) in the direction of the arrow and release it.

Note:

If the test disc fails to rotate, press the tray switch again.



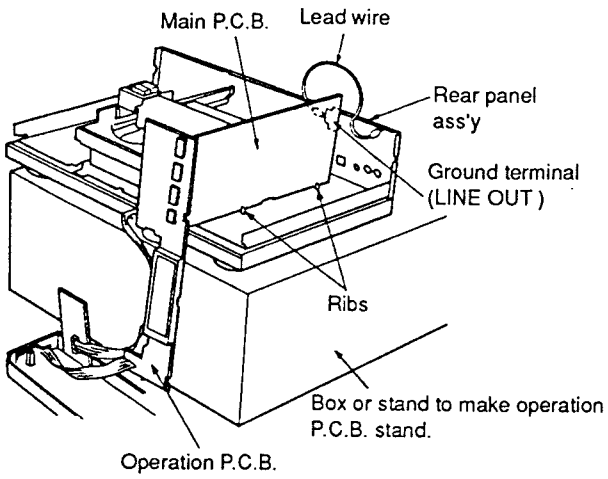
Note:

Put on the loading unit on the tabs of the front panel ass'y.
(Fixed loading unit)
Hold the loading unit and the optical pickup unit with a clip.
(Fixed optical pickup unit)
Secure the optical pickup assembly with a clip.
(Otherwise the clamper will interfere with the disc, restricting turntable rotation.)

■ CHECKING OF THE MAIN P.C.B.

1. Remove the cabinet (see Ref. No. 1 of the disassembly instructions).
2. Remove the front panel ass'y (see Ref. No. 2 of the same).
3. Remove the operation P.C.B. (see Ref. No. 4 of the same).
4. Remove the main P.C.B. (see Ref. No. 9 of the same).
5. Don't remove the 7 connectors (CN11, CN12, CN13, CN401, CN415, CN431, CN871).
6. Connect the main P.C.B. ground terminal (LINE OUT terminal) to the rear panel ass'y with a lead wire.

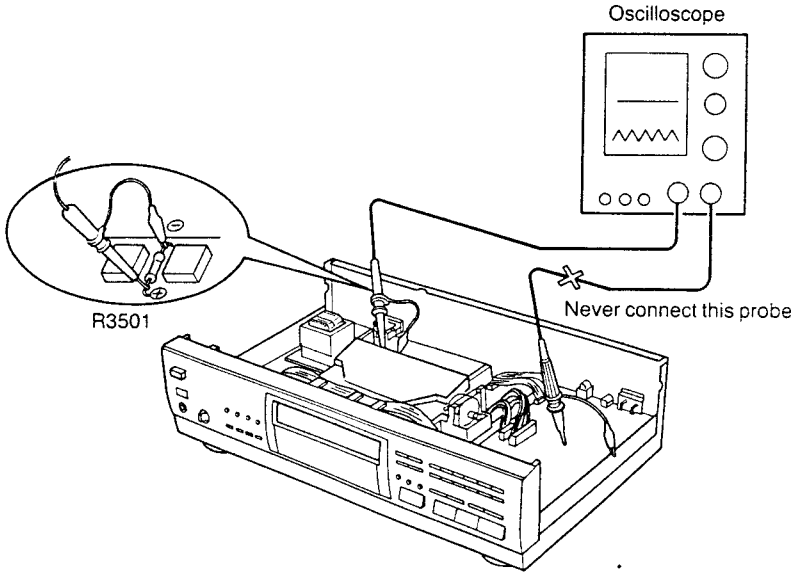
• When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown below.



■ MEASUREMENTS AND ADJUSTMENTS

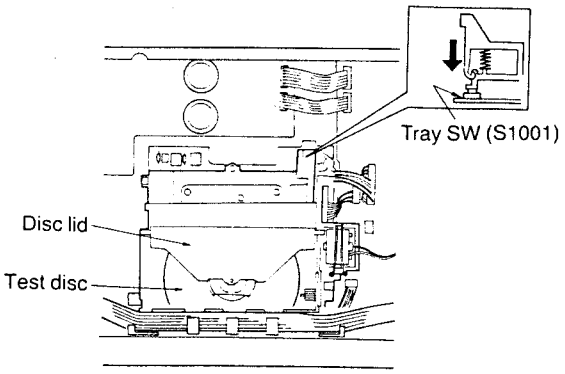
Caution:

1. It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens. Avoid exposure to the laser beam, especially when performing adjustments.
2. During laser power or focus offset adjustment, never connect the other probe to the unit. (Otherwise the unit's power supply will sustain damage.)



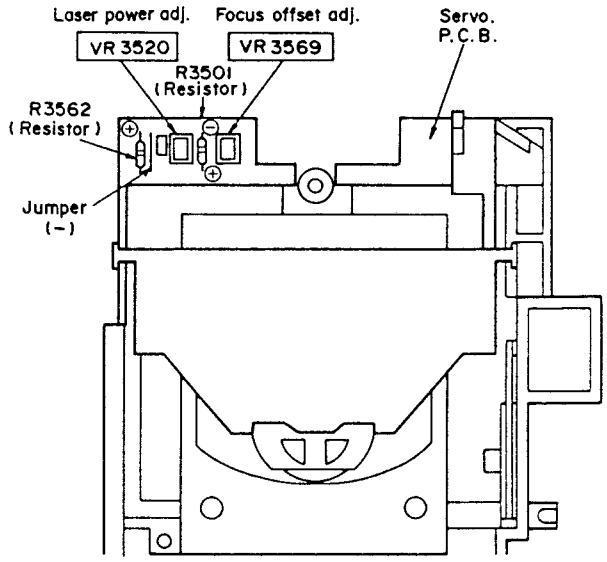
PREPARATION

1. Remove the cabinet (see Ref No. 1 of the disassembly instructions).
2. Remove the disc holder (see Ref No. 7 of the same).
3. Place the test disc on the turntable.
4. Turn "ON" the power switch at the player.
5. Push the bracket of tray SW (S1001) in the direction of the arrow and release it.
   Note: If the test disc fails to rotate, press the tray switch again.



ADJUSTMENT POINTS

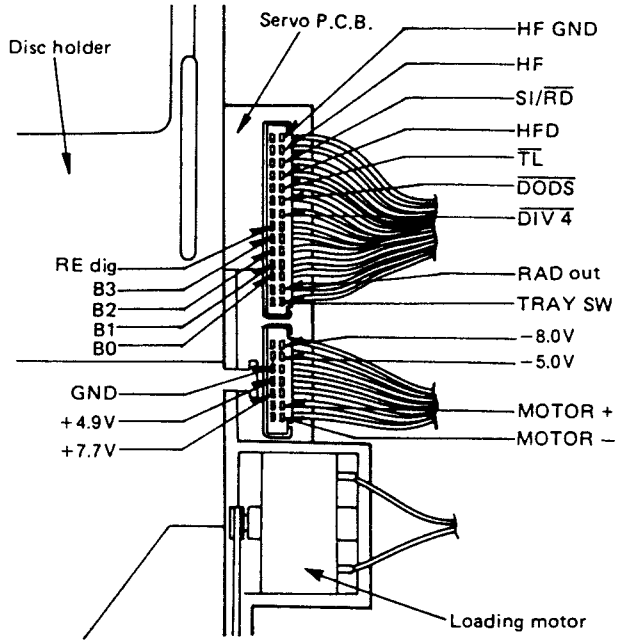
• **Servo P.C.B.**



Note:
Use connector pins to check servo circuit voltages and waveforms.

POINTS FOR CHECKING OF SERVO CIRCUIT'S VOLTAGE AND WAVEFORM

(Refer to pages 14~16.)



Measuring Instruments

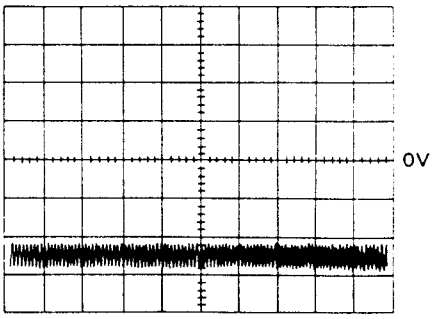
* Playability test disc (SZZP1054C).
* Normal disc (Ordinary musical program disc).
* Dual-beam oscilloscope with bandwidth of 30MHz or better (with EXT trigger and 1: 1 probe).

(1) LASER POWER ADJUSTMENT

1. Connect the oscilloscope's CH1 probe across (+) and (–) of **R3501** (Resistor) on the servo P.C.B.
2. Switch the player power ON, and play track No. 1 on the test disc (SZZP1054C).
3. Adjust **VR3520** so that the voltage is **–50±2mV**.

Oscilloscope setting:

VOLT 20mV
SWEEP.....0.2msec.
INPUT.....DC

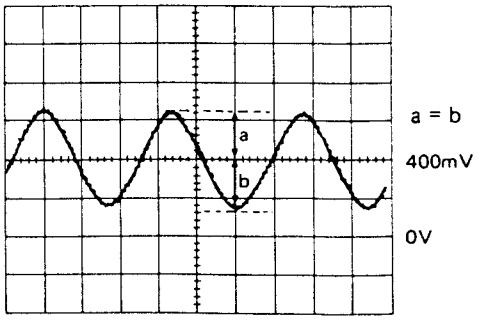


(2) FOCUS OFFSET ADJUSTMENT

1. Connect the oscilloscope's CH1 probe across **R3562** (Resistor) (+) and **Jumper** (–) on the servo P.C.B.
2. Switch the player power ON, and play track No. 1 on the test disc (SZZP1054C).
3. Adjust **VR3569** until the signal amplitude become in the center of **400mV**.

Oscilloscope setting:

VOLT 200mV
SWEEP.....5msec.
INPUT.....DC



(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

* **Checking Skip Search**

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

* **Checking Manual Search**

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

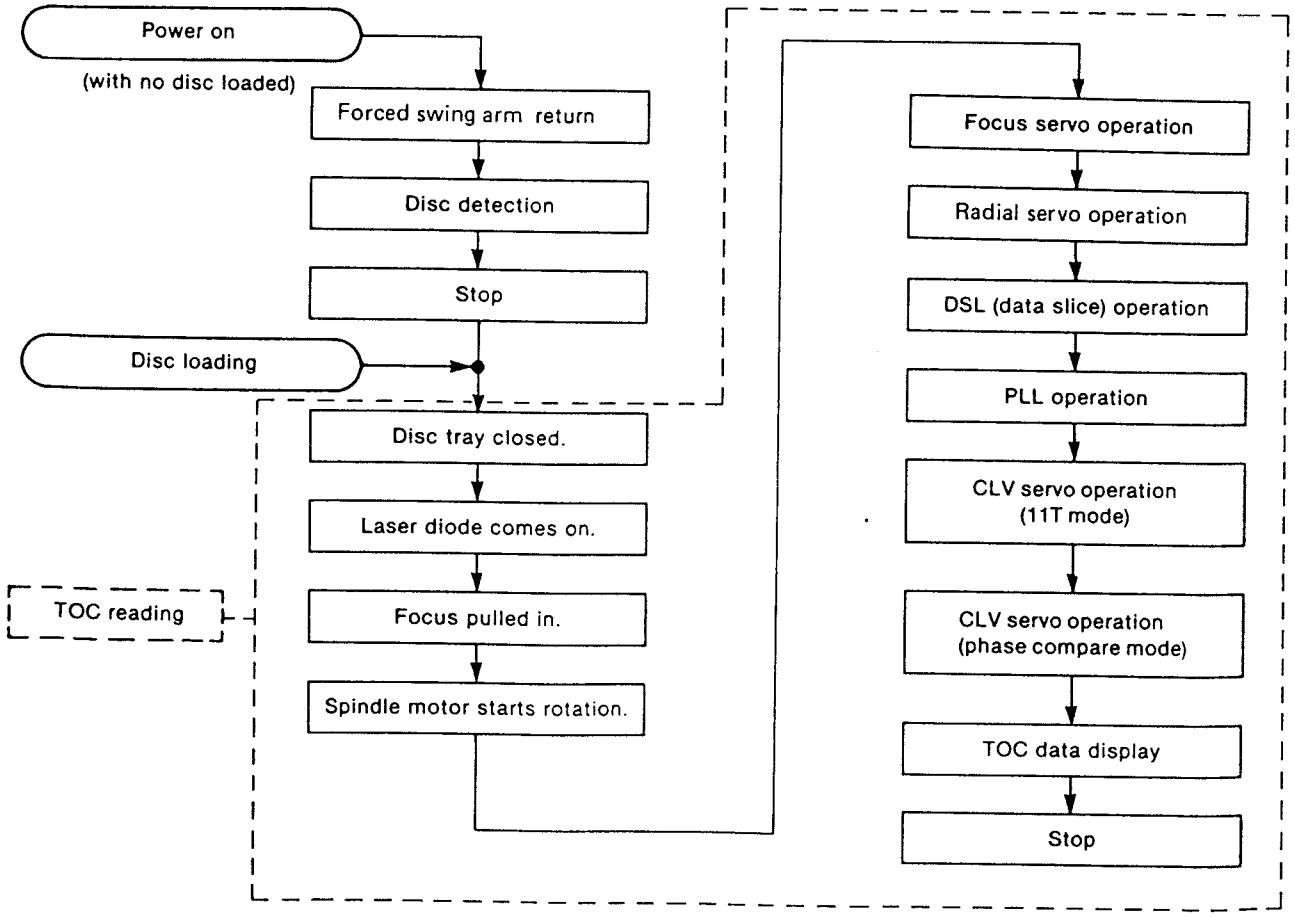
* **Playability check by test disc**

1. Play the 0.7mm black dot and the 0.7mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.

■ TROUBLESHOOTING GUIDE

SL-PS740A Operation Sequence Check Sheet

Play Operation Sequence



PLAY key pressed.

Laser diode comes on.

Focus pulls in.

Spindle motor starts rotation.

Focus servo operation

Radial servo operation

DSL (data slice) operation

PLL operation

CLV servo operation (11T mode)

CLV servo operation (phase compare mode)

Data demodulator circuit operation

Access control circuit operation

Play operation

STOP key pressed.

Stop

(Operation Sequence Just After Power On)

Power On (no disc loaded)

FL display came on? — No:
(1) Power supply failure:
• Voltage regulator (IC11, Q11~16, Q891~893)
• IC protector (ICP11, 12)
(2) Microprocessor failure:
• IC401

Yes

Tray closed? — No:
① Microprocessor failure:
• IC401
② Loading motor driver failure:
• IC402,motor
③ Tray switch failure

Yes

Does optical pickup move toward inner track? — No:
① Radial control system failure:
• IC6504, Radial motor
• IC401

Yes

Stops after making focus pull-in operation for approx. 5 sec.

(TOC Read Operation-PLAY Operation)

Open/Close switch pressed.

Has the tray opened and stopped? — No:
① Microprocessor failure
• IC401
② Operation key switch failure
③ Tray switch failure

Yes

Load a disc and press the Open/Close switch.

Has the tray closed and stopped? — No:
① Microprocessor failure
• IC401
② Operation key switch failure
③ Tray switch failure

Yes

Laser diode came on? — No:
① Pickup failure:
• Laser diode
② Control system failure:
• IC6501, Q6502
③ Microprocessor failure:
• IC401

— Laser diode turn-on check method —
Remove the disc then close the tray, and the laser diode will come on for approx. 5 sec.

Yes

Does focus lens make vertical movements? — No:
① Microprocessor failure:
• IC401
② Control system failure:
• IC6501
③ FO error amp. failure:
• IC6501, IC6504
④ Pickup failure:
• Focus coil

Yes

Spindle motor started rotation? — No:
① Microprocessor failure:
• IC401
② T.T. drive system failure:
• IC301, 402, Q351, Turntable motor

Yes Ⓐ

Ⓐ

Focus servo locked? — No:
① FO error amp. failure:
•IC6501,6504

Yes

Radial servo locked? — No:
① Microprocessor failure:
• IC401
② Control system failure:
• IC6501,6504
③ TR error amp. failure:
• IC6501,6503,6504
④ Pickup failure:
• Radial coil

Yes

HF(RF) Signal present? — No:
① AGC circuit failure:(RF Amp.)
•IC6501

— AGC circuit check method —
Verify that HF signal amplitude at C305's lead is 1.0Vp-p~1.5Vp-p.

Yes

Audio signal output present? — No:
① DF/DAC circuit failure:
• IC801
② Low-pass filter circuit failure:
• IC802, 891

Yes

Play operation

■ SCHEMATIC DIAGRAM

(Parts list on pages 34~37)

Notes:

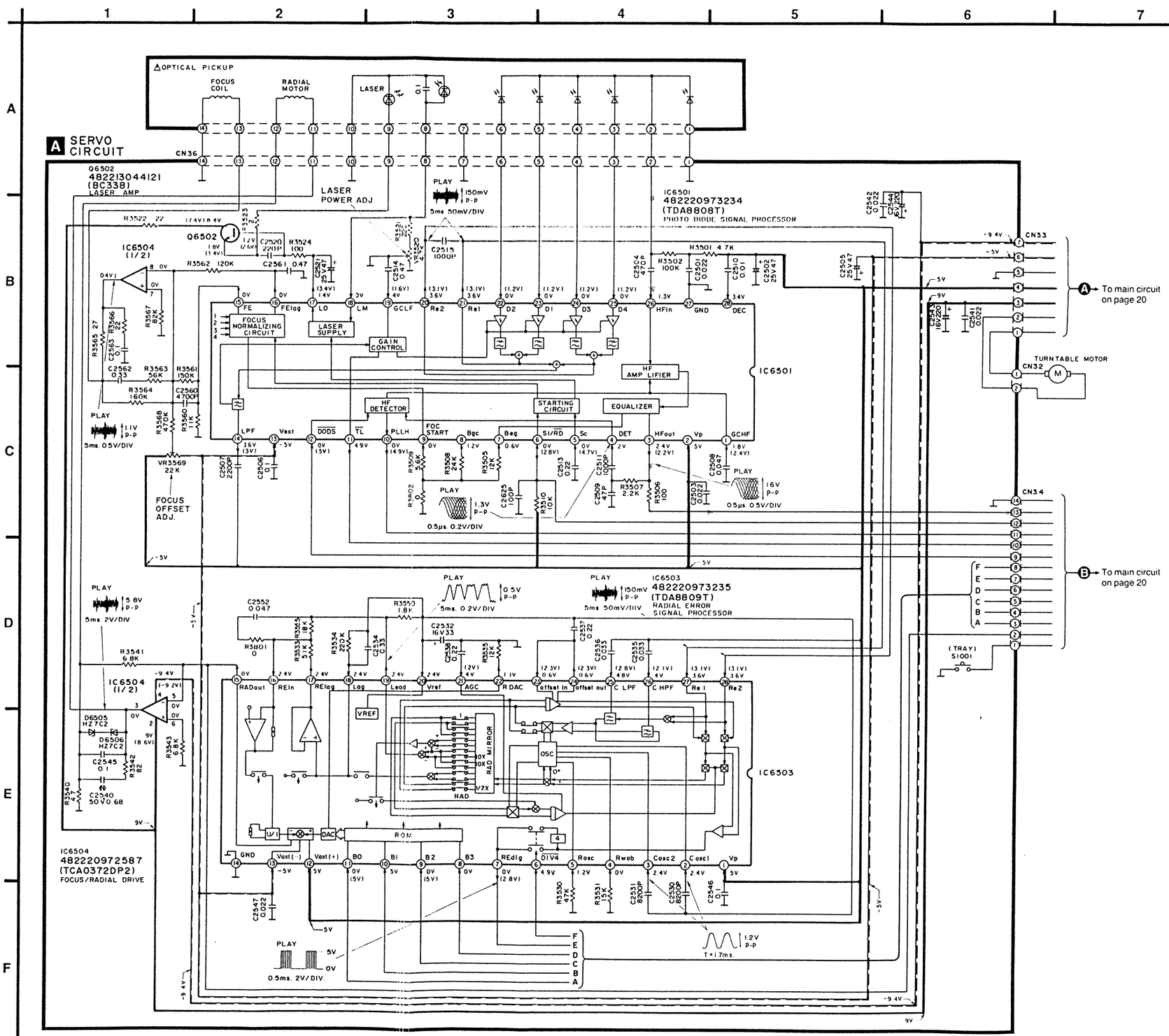
- •S601~612 : Numeric(>10, 0~10) switches
  - S601: 0, S602: 1, S603: 2
  - S604: 3, S605: 4, S606: 5
  - S607: >10, S608: 10, S609: 9
  - S610: 8, S611: 7, S612: 6
- •S613 : Play (▶ PLAY) switch
- •S614 : Skip (|◀◀ SKIP) switch
- •S615 : Search (◀◀ SEARCH) switch
- •S616 : Program (PROGRAM) switch
- •S617 : Disc link (DISC LINK) switch
- •S618 : Output level meter on/off (LEVEL METER) switch
- •S619 : Stop (■ STOP) switch
- •S620 : Skip (▶▶| SKIP) switch
- •S621 : Search (▶▶ SEARCH) switch
- •S622 : Recall (RECALL) switch
- •S623 : Tape side select (SIDE A/B) switch
- •S624 : Random (RANDOM) switch
- •S625 : Time fade (TIME FADE) switch
- •S626 : Disc tray open/close (▲ OPEN/CLOSE) switch
- •S627 : Pause (❚❚ PAUSE) switch
- •S628 : Repeat (REPEAT) switch
- •S629 : Clear (CLEAR) switch
- •S630 : Tape length (TAPE LENGTH) switch
- •S631 : Time mode select (TIME MODE) switch
- •S632 : Peak search (PEAK SEARCH) switch
- •S633 : Level control (LEVEL +) switch
- •S634 : Level control (LEVEL −) switch
- •S635 : Auto cue (AUTO CUE) switch
- •S651 : Power "STANDBY⏻/ON" (POWER, ▙ STANDBY ⏻ ▟ ON) switch in "ON" position
- •S1001 : Tray open/close switch

•This schematic diagram may be modified at any time with the development of new technology.

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
  ＊The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.
- Important safety notice:
  Components identified by △ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- The supply part number is described alone in the replacement parts list.

Part No.	Production Part No.	Supply Part No.
IC11	LM2940T5M	LM2940T5
IC301	MN6626-MC	MN6626
IC803~805	BA4560FT1	SVIBA4560FT1

- ——— / – – – – : Positive voltage lines and negative voltage lines.
  ⋯⋯ : Audio signal lines.



B OPERATION CIRCUIT

FL601 (RSL0146-F)

FL DISPLAY

C POWER SWITCH CIRCUIT

S651 (POWER)

on ⇔ standby

IC601
RCDHC-237
REMOTE SENSOR

D MAIN CIRCUIT (System control/Digital signal processor/Digital fill./AF out)

To servo circuit on page 18

To servo circuit on page 18

IC401
UPD78043G015
SYSTEM CONTROL & FL DRIVE

IC402
TCA0372DM2R
MOTOR DRIVE

LOADING MOTOR

IC301
MN6626-MC
DIGITAL SIGNAL PROCESSOR

Q351
DTA124ESTP
MOTOR CONTROL

Q201
DTC124ESTP
SWITCHING
(SYNCHRO EDIT)

IC801
MN6474E
DIGITAL FILTER
& D/A CONVERTER

Q807
DTA124ESTP
ZERO DETEC

D601~608
ISS254TA

S612 (6) S624 (RANDOM) S628 (REPEAT) S615 (SEARCH ◀◀) S616 (PROGRAM)
S602 (1) S635 (AUTO CUE) S632 (PEAK SEARCH) S629 (CLEAR) S622 (RECALL)
S611 (7) S610 (8) S609 (9) S608 (10) S601 (0)
S603 (2) S604 (3) S605 (4) S606 (5) S607 (>10)
S621 (SEARCH ▶▶) S614 (SKIP ⏮) S620 (SKIP ⏭) S619 (■) S626 (▲OPEN/CLOSE)
S630 (TAPE LENGTH) S623 (SIDE A/B) S618 (LEVEL METER)
S617 (DISC LINK) S625 (TIME FADE) S631 (TIME MODE) S634 (LEVEL -) S633 (LEVEL +)
S627 (▮▮) S613 (▶)

10 11 12 13 14 15 16 17 18 19

E POWER SUPPLY CIRCUIT

F HEADPHONES CIRCUIT

Q12, 14 2SC3311QRSTA POWER SUPPLY/STABILIZER
Q31 2SA1309QRSTA POWER SUPPLY
Q11, 15 2SA1309QRSTA POWER SUPPLY/STABILIZER
Q16 2SB1238QSTV6 REGULATOR
IC11 LM2940T5M REGULATOR
Q13, 15, 33, 34 2SA1309QRSTA POWER SUPPLY/STABILIZER
Q32 DTC124ESTP POWER SUPPLY CONT.
D11~14, 31~34 1D3-E
Q891 2SC3311QRSTA POWER SUPPLY
IC871 BA4560N HEADPHONES AMP
Q892, 893 2SA1309QRSTA POWER SUPPLY/STABILIZER
Q871, 872 2SD1450RSTTA MUTING
Q201 DTC124ESTP SWITCHING (SYNCHRO EDIT)
Q811 DTA114ESTP MUTING CONT.
Q809 DTA124ESTP MUTING CONT.
Q810 DTC124ESTP MUTING CONT.
Q51, 52 2SC3311QRSTA RESET SIGNAL GENERATOR
JK201 SYNCHRO EDIT
JK301 TOTX174-A OPTICAL TRANSMISSION MODULE
DIGITAL (OPTICAL OUT)
JK871 HEADPHONES
AC IN (230-240V) (50/60Hz)
IC801 PCM1716E DIGITAL FILTER D/A CONVERTER
IC802 LM833M63 DIFFERENTIAL AMP
IC803 (1/2) IC804 (1/2) IC805 (1/2) BA4560FTI CLASS AA AMP
IC806 BA4560FTI L.P.F./BUFFER AMP
Q803, 804 2SD1450RSTTA MUTING
Q805, 806 2SC3311QRSTA ZERO DETECTOR
Q807 DTA124ESTP ZERO DETECTOR
Q808 DTA124ESTP DE-EMPHASIS AMP
Q801, 802 2SC3311QRSTA DE-EMPHASIS DRIVE
JK801 OUT
L ch
R ch

Caution!
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

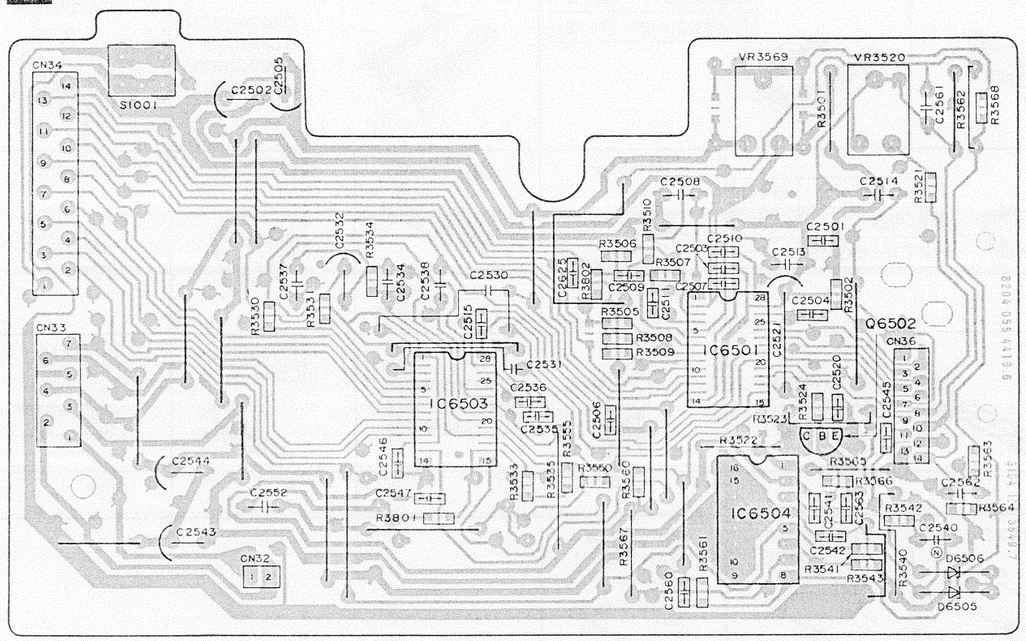
PRINTED CIRCUIT BOARD DIAGRAM

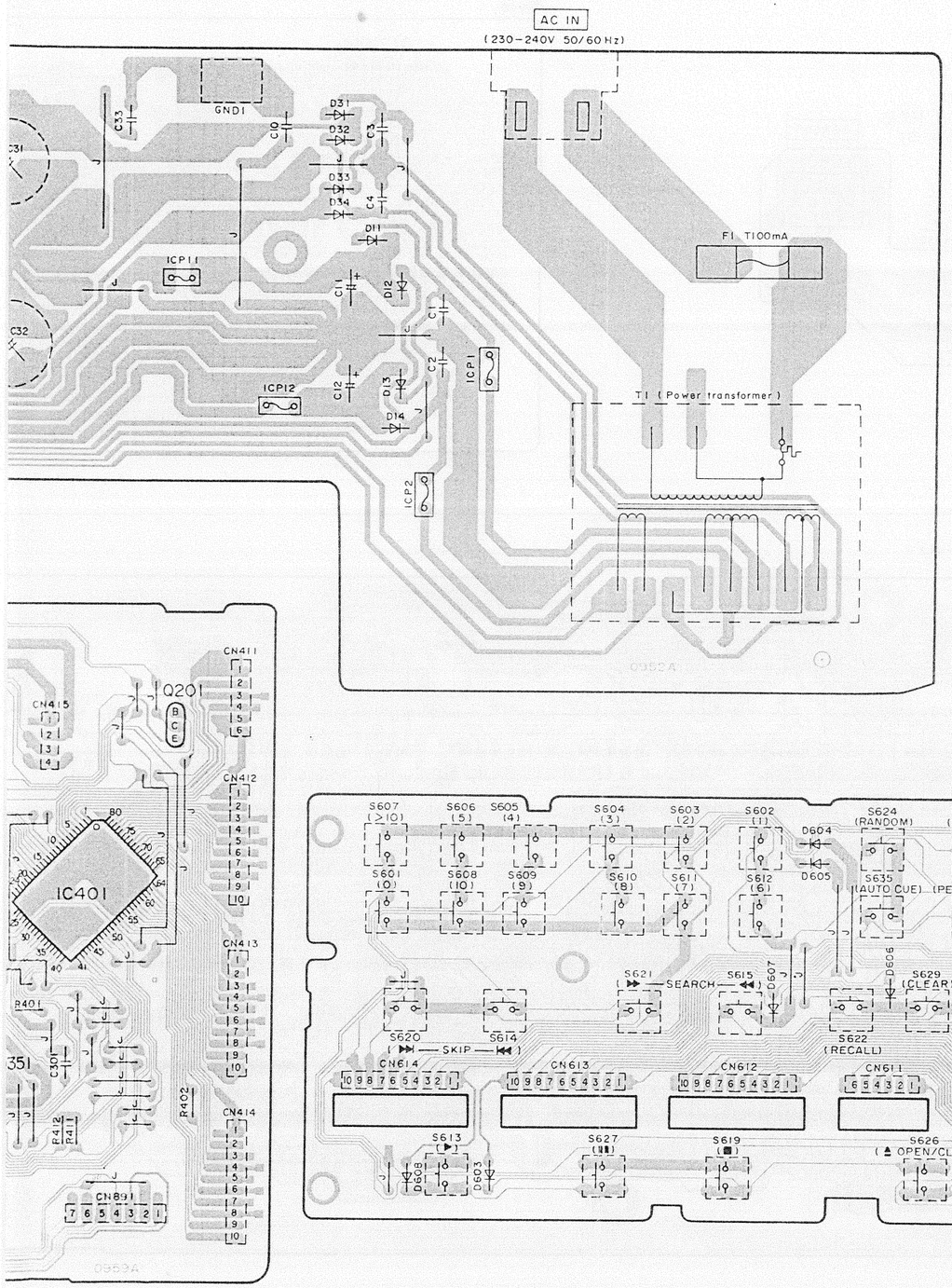
1 2 3 4 5 6 7 8 9 10

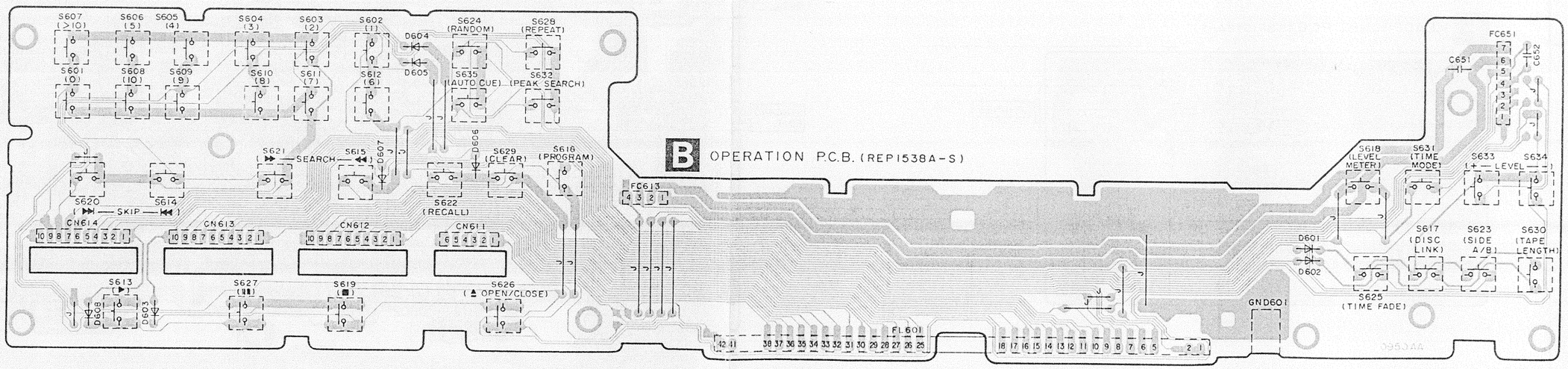
A B C D E F

•This circuit board diagram may be modified at any time with the development of new technology.

A SERVO P.C.B.(3108648651)

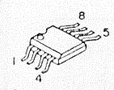




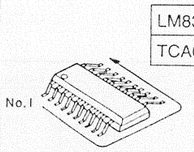


•Terminal guide of IC's, transistors and diodes

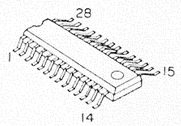
BA4560FT1



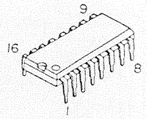
LM833M63	8 Pin
TCA0372DM2R	16 Pin

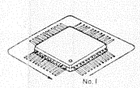


482220973234 (TDA8808T)
482220973235 (TDA8809T)



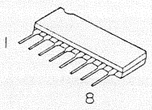
482220972587 (TCA0372DP2)



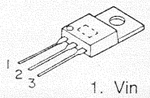


MN6474E	42 Pin
MN6626	64 Pin
UPD78043G015	80 Pin

BA4560N

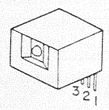


LM2940T5M

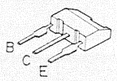


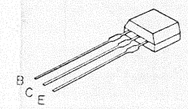
1. Vin
2. GND
3. Vout

RCDHC-237

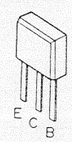


2SB1238QSTV6



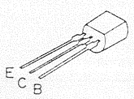


DTA114ESTP
DTA124ESTP
DTC124ESTP

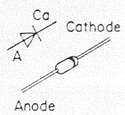


2SA1309QRSTA
2SC3311QRSTA
2SD1450RSTTA

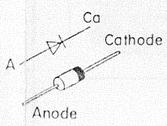
482213044121 (BC338)



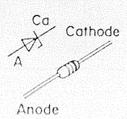
1SS254TA



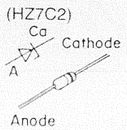
1D3-E



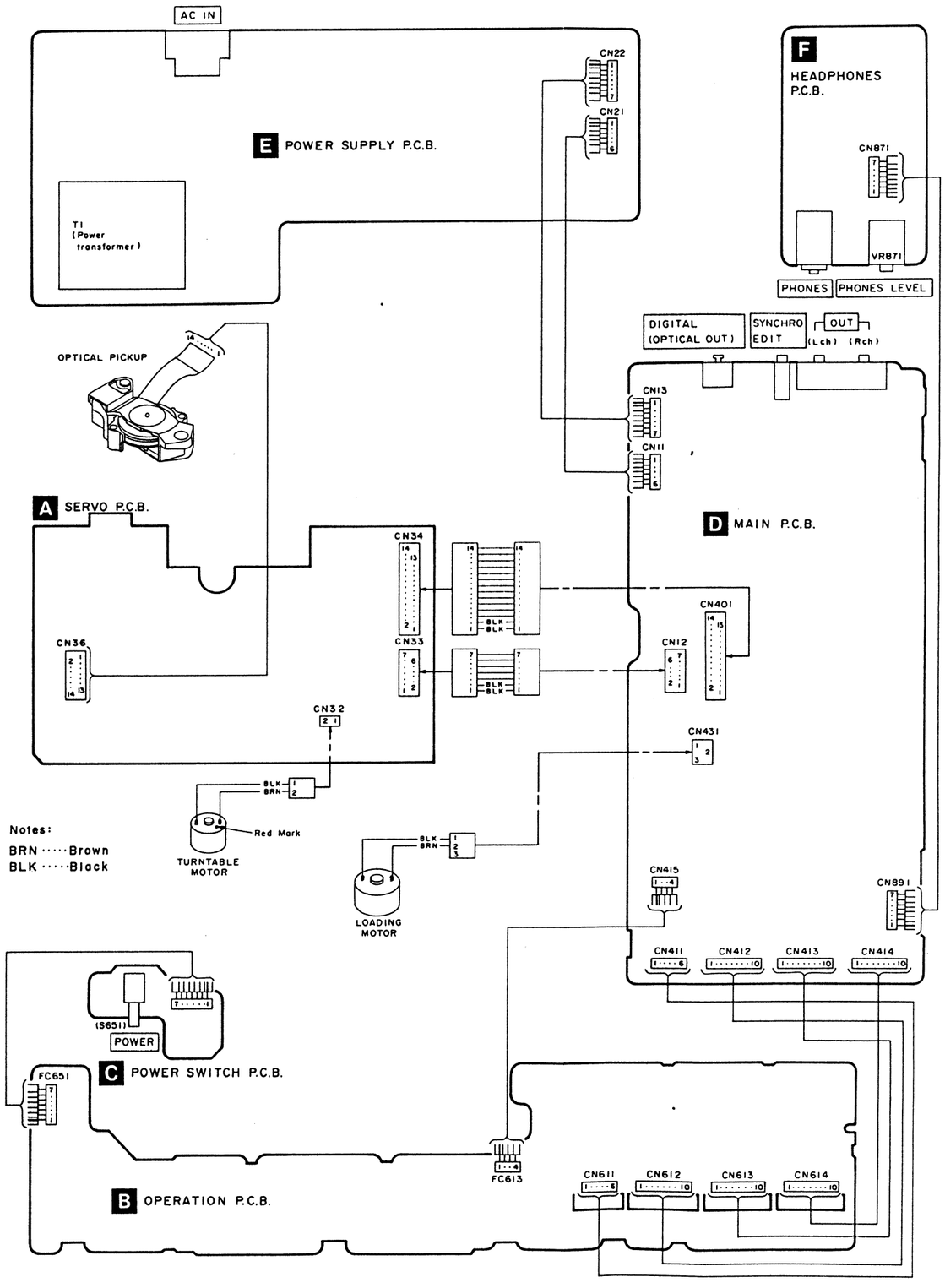
MA4039MTA
MA4082MTA



MA4160MTA
482213030861 (HZ7C2)

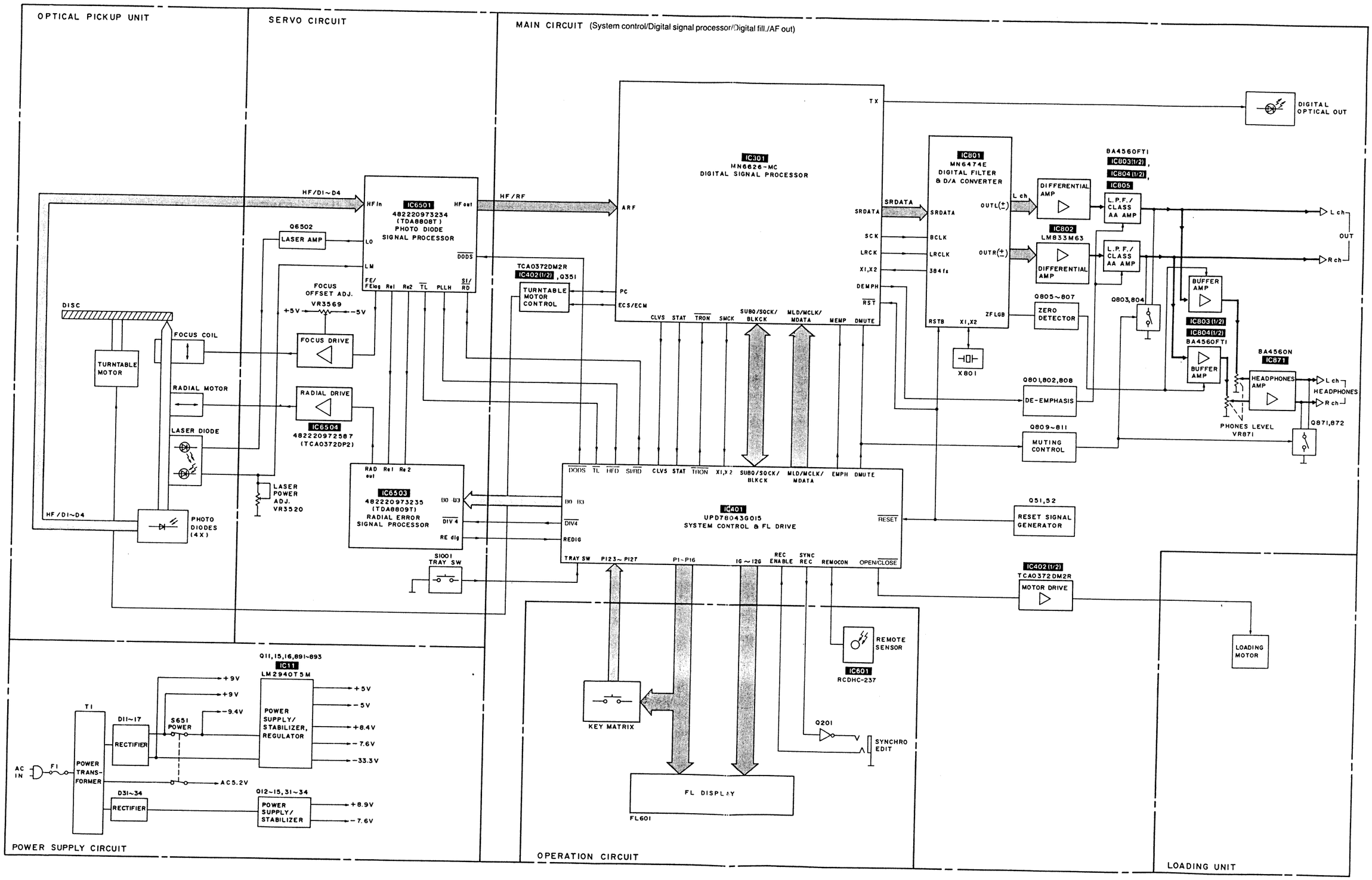


■ WIRING CONNECTION DIAGRAM



SL-PS740A

■ BLOCK DIAGRAM



■ FUNCTION OF IC TERMINALS

• IC6501 (482220973234/TDA8808T): Photo diode signal processor

Pin No.	Mark	I/O Division	Function
1	GCHF	I	Gain control input of HF amplifier. Current output from HF amplitude detector
2	Vp	I	Positive supply voltage
3	HFout	O	HF amplifier and equalizer voltage output
4	DET	I	HF detector voltage input
5	Sc	I	Starting up capacitor input
6	Si/$\overline{RD}$	I/O	On/off control (start input); ready signal output (starting up procedure successful)
7	Beg	I	Equalizer reference current input
8	Bgc	I	DC and LF gain control reference current input
9	FOC START	I	Focus normalizing circuit starting current
10	PLLH	O	PLL on hold output
11	$\overline{TL}$	O	Track loss output
12	$\overline{DODS}$	I	Drop out detector suppression input
13	Vext	I	Negative supply connection for FE and FElag output stage; also substrate connection
14	LPF	O	Low pass filter for Iret, used in track loss ($\overline{TL}$) detector and LF gain control
15	FE	O	Current output of normalized, switched focus error signal
16	FElag	O	Current output of switched focus error signal, intended for lag network
17	LO	O	Laser amplifier current output
18	LM	I	Laser monitor diode input
19	GCLF	I	Gain control input for AC and LF amplifiers. Current output from LF amplitude detector
20	Re2	O	Summation of amplified currents from D3 and D4
21	Re1	O	Summation of amplified currents from D1 and D2
22, 23	D1, D2	I	Current inputs to DC and LF photo diode amplifier
24, 25	D3, D4	I	Current inputs to DC and LF photo diode amplifier
26	HFin	I	Current input to HF amplifier
27	GND	I	Ground connection of device
28	DEC	I	Decoupling input (internal bypass)

• IC6503 (482220973235/TDA8809T): Radial error signal processor

Pin No.	Mark	I/O Division	Function
1	Vp	I	Positive supply voltage
2	Cosc1	I	Frequency setting capacitors for oscillator
3	Cosc2		
4	Rwob	I	Wobble generator input
5	Rosc	I	Biassing resistor for oscillator frequency and internal amplitude
6	$\overline{DIV4}$	I	Radial error digital signal devided by four
7	REdig	O	Digital output of sign (Re2 – Re1)
8	B3	I	Input control bits for off-, catch-, play-status and DAC output current
9	B2		
10	B1		
11	B0		
12	Vext (+)	I	Positive external voltage input
13	Vext (−)	I	Negative external voltage input (also substrate connection)
14	GND	I	GND terminal
15	RADout	O	Current output of amplified (Re2 – Re1) input currents
16	REin	I	Radial error input
17	RElag	O	Voltage output of integrated (Re2 – Re1) input currents
18	Lag	I	Connection of integrator capacitor for (Re1 – Re2) input currents
19	Lead	O	Lead output
20	Vref	I	Internal reference voltage output
21	AGC	I	Gain control input for radial error signal
22	RDAG	O	Biassing resistor for current output for track jumping ($3^1/_2$ bits)
23	offset in	I	Offset control input for radial offset
24	offset out	O	Offset control output for radial offset
25	CLPF	I	Low-pass filter for Re1 and Re2, used for radial offset control
26	CHPF	I	High-pass filter for Re1 and Re2, used for radial offset control
27	Re1	I	Input for amplified currents from photo diodes D1 and D2
28	Re2	I	Input for amplified currents from photo diodes D3 and D4

• IC301 (MN6626): Digital signal processor

Pin No.	Mark	I/O Division	Function
1	AVSS	—	GND terminal
2	IREF	I	Reference current input
3	ARF	I	RF signal input
4	DRF	I	DSL bias terminal (Not used, open)
5	DSLF	I/O	DSL loop filter terminal
6	PLLF	I/O	PLL loop filter terminal
7	AVDD	I	Power supply terminal
8	RSEL	I	RF signal polarity setting terminal (Not used, connected to VDD)
9 ∫ 16	TBUS7 ∫ TBUS0	O	Test terminal
17	FLAG	O	Flag terminal
18	IPFLAG	O	Interpolation flag terminal
19	FCLK	O	Crystal frame clock (Not used, open)
20	BYTCK	O	Byte clock (Not used, open)
21	WDCK	O	Word clock (Not used, open)
22	$\overline{RST}$	I	Reset terminal
23	TX	O	Digital audio signal (Not used, open)
24	LDG	O	Lch deglitch signal (Not used, open)
25	RDG	O	Rch deglitch signal (Not used, open)
26	SRDATA	O	Serial data output (MSB first)
27	SCK	O	Serial bit clock output
28	LRCK	O	L/R discriminating signal
29	XCK	O	Crystal OSC terminal (f=16.9344MHz) (Not used, open)
30	PMCK	O	Frequency division clock signal (Not used, open) ($f=\frac{1}{192}\times CK=88.2kHz$)
31	CSEL	I	Test terminal (Connected to GND)
32	PSEL		
33	X1	I	Crystal OSC terminal (f=16.9344MHz)
34	X2	O	
35	VSS	—	GND terminal
36	SUBQ	O	Sub-code Q data
37	SQCK	I	Sub-code Q register clock
38	$\overline{CLDCK}$	O	Sub-code frame clock (f=7.35kHz) (Not used, open)

Pin No.	Mark	I/O Division	Function
39	BLKCK	O	Sub-code block clock (f=75Hz)
40	DEMPH	O	De-emphasis ON signal ("H": ON)
41	MEMP	I	Emphasis signal
42	MLD	I	Command load signal ("L": LOAD)
43	MCLK	I	Command clock signal
44	MDATA	I	Command data signal
45	D MUTE	I	Muting input ("H": MUTE)
46	SMCK	O	System clock (f=4.2336MHz)
47	STAT	O	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
48	CRC	O	Sub-code CRC check terminal ("H": OK, "L": NG)
49	SUBC	O	Sub-code serial output data (Not used, open)
50	SBCK	I	Sub-code serial output clock (Not used, open)
51	$\overline{TRON}$	I	Tracking servo ON signal ("L": ON)
52	CLVS	O	Turntable servo phase synchro signal ("H": CLV, "L": Rough servo)
53	PC	O	Turntable motor ON signal ("L": ON)
54	ECM	O	Turntable motor drive signal (Forced mode)
55	ECS	O	Turntable motor drive signal (Servo error signal)
56	VDD	I	Power supply terminal
57	$\overline{TEST}$	I	Test terminal (Normal: "H")
58	SSEL	I	"SUBQ" terminal mode select ("H": Q code buffer)
59	MSEL	I	"SMCK" terminal frequency select ("L": SMCK=4.2336MHz)
60	RESY	O	Re-synchronizing signal of frame sync. (Not used, open)
61	DO	I	Drop-out detection signal ("H": Drop-out) (Not used, connected to GND)
62	EFM	O	EFM signal (Not used, open)
63	PCK	O	PLL extract clock (f=4.3218MHz) (Not used, open)
64	PDO	O	Phase comparated signal of EFM and PCK (Not used, open)

•IC401 (UPD78043G015) System control & FL drive

Pin No.	Mark	I/O Division	Function
1 ~ 7	G7 ~ G1	O	FL grid signal
8	V_{DD}	—	Power supply terminal
9	SQCK	O	Sub-code Q register clock
10	NC	—	Not connected
11	SUBQ	I	Sub-code Q data
12	OPEN/$\overline{\text{CLOSE}}$	O	Loading motor control signal H: OPEN, L: CLOSE
13 ~ 16	B3 ~ B0	I/O	Control bits for off-, catch-, play-status and DAC output current
17	$\overline{\text{RESET}}$	I	Reset signal input
18	SI/$\overline{\text{RD}}$	O	On off control and ready signal
19	$\overline{\text{DIV4}}$	O	Redial error digital signal devided by four
20	A.V_{SS}	—	GND terminal
21	REC ENABLE	I	Synchro rec. control terminal
22	P16	I	Level meter selector
23	P15	I	Not connected
24	TRAY SW	I	Disc holder open/close det. terminal
25 ~ 27	P13 ~ P11	I	Not connected
28	$\overline{\text{HFD}}$	I	PLL on hold input
29	A.V_{DD}	I	Power supply terminal
30	A.V_{SS}	I	Connected to GND
31	V_{SS}	I	Not connected
32	NC	O	
33	V_{SS}	—	GND terminal
34	X1	I	System clock input/output (f=4.2336 MHz)
35	X2	O	

Pin No.	Mark	I/O Division	Function
36	SYNC REC	O	Synchro rec. control terminal
37	$\overline{\text{DODS}}$	O	Drop-out detect signal
38	CLVS	I	Spindle servo phase synchro signal ("H": CLV, "L": Rough servo)
39	$\overline{\text{TRON}}$	O	Tracking servo ON signal ("L": ON)
40 • 46	RE DIG	I	Radial error digital
41	MDATA	O	IC (MN6626) command data signal
42	MCLK	O	IC (MN6626) command clock signal
43	$\overline{\text{MLD}}$	O	IC (MN6626) command load signal
44	BLKCK	I	Sub-code block clock
45	$\overline{\text{TL}}$	I	Track loss input
47	REMOCON	I	Remote control signal
48	V_{SS}	—	Connected to GND
49	STAT	I	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
50	DMUTE	O	Muting output ("H": MUTE)
51	EMPH	O	Emphasis signal ("H": EMPHASIS ON)
52	V_{DD}	—	Power supply terminal
53 ~ 57	P127 ~ P123	I	Key return signal
58	P122	—	Not connected
59 ~ 70	P16 ~ P5	O	FL segment signal and key scan signal
71	V_{PP}	I	Power Supply terminal for FL drive
72 ~ 75	P4 ~ P1	O	FL segment signal
76 ~ 80	12G ~ 8G	O	FL grid signal

• **IC801 (MN6474E): Digital filter and D/A converter**

Pin No.	Mark	I/O Division	Function
1	MLD	I	Command load input (load: L) (Not used, connected to VDD)
2	RSTB	I	Reset terminal
3	IE	I	Not used, connected to GND
4	TP1	—	TEST terminal
5	TP2	—	
6	TEST1	I	TEST terminal 1 (connected to GND)
7	TEST2	I	TEST terminal 2 (connected to GND)
8	NC	—	Not connected
9	NC	—	Not connected
10	AVDD4	I	Power supply terminal
11	OUTL (−)	O	Lch data output, (−) terminal
12	AVSS4	—	GND terminal
13	AVSS3	—	GND terminal
14	OUTL (+)	O	Lch data output, (+) terminal
15	AVDD3	I	Power supply terminal
16	NC	—	Not connected
17	AVDD2	I	Power supply terminal
18	OUTR (+)	O	Rch data output, (+) terminal
19	AVSS2	—	GND terminal (analog system)
20	AVSS1	—	GND terminal (analog system)
21	OUTR (−)	O	Rch data output, (−) terminal
22	AVDD1	I	Power supply terminal
23	DVDD1	I	Power supply terminal

Pin No.	Mark	I/O Division	Function
24	DVSS1	—	GND terminal (digital system)
25	X2	O	Crystal OSC terminal (33 MHz)
26	X1	I	
27	NC	—	Not connected
28	DVDD2	I	Power supply terminal
29	DVSS2	—	GND terminal (digital system)
30	NSUB	I	Sub-strate terminal (Not used, connected to VDD)
31	ZFLGB	O	Zero input detector terminal (Not used, open)
32	192fs	O	192fs (8.4672 MHz) (Not used, open)
33	LRPOL	I	LR clock selector (Not used, connected to VDD)
34	LRCLK	I	LR discrimination signal input
35	BCLK	I	Serial bit clock input
36	SRDATA	I	Serial data input (MSB first)
37	DVSS3	—	GND terminal (digital system)
38	DVDD	I	Power supply terminal
39	384fs	O	384fs (16.9344 MHz) output
40	PD	I	Power down terminal (Not used, connected to GND)
41	MDATA	I	Mode control data (Not used, connected to VDD)
42	MCLK	I	Data clock for MDATA (not used, connected to VDD)

■ REPLACEMENT PARTS LIST

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*Remote Control Ass'y:
Supply period for three years from termination of production.
*[MB] Indicates in Remarks columns parts that are supplied by MBV.
*Warning: This product uses a laser diode. Refer to caution statements on pages 2, 3.
*ACHTUNG: Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC11	LM2940T5	I. C. REGULATOR	⚠
IC301	MN6626	I. C. DIG. SIG. PROCESSOR	
IC401	UPD78043G015	I. C. SYS. CONTROL&FL DRIVE	[MB]
IC402	TCA0372DM2R	I. C. MOTOR DRIVE	
IC601	RCDHC-237	I. C. REMOTE CONTROL RECEIVER	
IC801	MN6474E	I. C. FILTER & D/A CONVERTER	
IC802	LM833M63	I. C. DIFFERENTIAL AMP.	
IC803-805	SVIBA4560FT1	I. C. L. P. FILTER AMP.	
IC871	BA4560N	I. C. HEADPHONES AMP.	
		IC PROTECTOR(S)	
ICP1, 2	SRUN38T	IC PROTECTOR	⚠
ICP11, 12	SRUN15	IC PROTECTOR	⚠
		TRANSISTOR(S)	
Q11	2SA1309A-R	TRANSISTOR	
Q12	2SC3311A-Q	TRANSISTOR	
Q13	2SA1309A-R	TRANSISTOR	
Q14	2SC3311A-Q	TRANSISTOR	
Q15	2SA1309A-R	TRANSISTOR	
Q16	2SB1238QSTV6	TRANSISTOR	⚠
Q31	2SA1309A-R	TRANSISTOR	
Q32	DTC124EST	TRANSISTOR	
Q33, 34	2SA1309A-R	TRANSISTOR	
Q51, 52	2SC3311A-Q	TRANSISTOR	
Q201	DTC124EST	TRANSISTOR	
Q351	DTA124ESTP	TRANSISTOR	
Q801, 802	2SC3311A-Q	TRANSISTOR	
Q803, 804	2SD1450RTA	TRANSISTOR	
Q805, 806	2SC3311A-Q	TRANSISTOR	
Q807-809	DTA124ESTP	TRANSISTOR	
Q810	DTC124EST	TRANSISTOR	
Q811	DTA114ESTP	TRANSISTOR	
Q871, 872	2SD1450RTA	TRANSISTOR	
Q891	2SC3311A-Q	TRANSISTOR	
Q892, 893	2SA1309A-R	TRANSISTOR	
		DIODE(S)	
D11-17	1D3-E	DIODE	⚠[MB]

Ref. No.	Part No.	Part Name & Description	Remarks
D19, 20	MA4160M	DIODE	⚠
D21	MA4082MTA	DIODE	⚠
D22	1SS254TA	DIODE	
D31-34	1D3-E	DIODE	⚠[MB]
D35	MA4039MTA	DIODE	⚠
D36-38	1SS254TA	DIODE	
D51	MA4039MTA	DIODE	
D601-608	1SS254TA	DIODE	
D801-806	1SS254TA	DIODE	
D807	1D3-E	DIODE	[MB]
D808	1SS254TA	DIODE	
D891	1SS254TA	DIODE	
		VARIABLE RESISTOR(S)	
VR871	EVJCE0FA5A15	V. R. HEADPHONES	[MB]
		COIL(S)	
L201, 202	RLQZN3R3KL-D	COIL	[MB]
L311	RLQZN1R0KL-D	COIL	
L801-804	RLQZN471KL-D	COIL	[MB]
L805	RLQZN4R7KL-D	COIL	
L871-873	RLQZN3R3KL-D	COIL	[MB]
L874	RLQZN4R7KL-D	COIL	
		TRANSFORMER(S)	
T1	RTP1K4B008	POWER TRANSFORMER	⚠[MB]
		OSCILLATOR(S)	
X801	RSXA33M8J01T	OSCILLATOR(33MHz)	[MB]
		DISPLAY	
FL601	RSL0146-F	FL DISPLAY	[MB]
		SWITCH(ES)	
S601	EVQ21405R	SW. 0	
S602	EVQ21405R	SW. 1	
S603	EVQ21405R	SW. 2	
S604	EVQ21405R	SW. 3	
S605	EVQ21405R	SW. 4	

Ref. No.	Part No.	Part Name & Description	Remarks
S606	EVQ21405R	SW, 5	
S607	EVQ21405R	SW, >10	
S608	EVQ21405R	SW, 10	
S609	EVQ21405R	SW, 9	
S610	EVQ21405R	SW, 8	
S611	EVQ21405R	SW, 7	
S612	EVQ21405R	SW, 6	
S613	EVQ21405R	SW, PLAY	
S614	EVQ21405R	SW, R. SKIP	
S615	EVQ21405R	SW, R. SEARCH	
S616	EVQ21405R	SW, PROGRAM	
S617	EVQ21405R	SW, DISC LINK	
S618	EVQ21405R	SW, LEVEL METER	
S619	EVQ21405R	SW, STOP	
S620	EVQ21405R	SW, F. SKIP	
S621	EVQ21405R	SW, F. SEARCH	
S622	EVQ21405R	SW, RECALL	
S623	EVQ21405R	SW, SIDE A/B	
S624	EVQ21405R	SW, RANDOM	
S625	EVQ21405R	SW, T. FADE	
S626	EVQ21405R	SW, OPEN/CLOSE	
S627	EVQ21405R	SW, PAUSE	
S628	EVQ21405R	SW, REPEAT	
S629	EVQ21405R	SW, CLEAR	
S630	EVQ21405R	SW, TAPE LENGTH	
S631	EVQ21405R	SW, TIME MODE	
S632	EVQ21405R	SW, PEAK SEARCH	
S633	EVQ21405R	SW, LEVEL UP	
S634	EVQ21405R	SW, LEVEL DOWN	
S635	EVQ21405R	SW, AUTO CUE	
S651	RSP2B010	SW, POWER	⚠
		CONNECTOR(S)	
CN11	RJS1A6606	SOCKET(6P)	
CN12	RJT001H007	CONNECTOR(7P)	[MB]
CN13	RJS1A6607T1	SOCKET(7P)	[MB]
CN21	RJS1A6606	SOCKET(6P)	
CN22	RJS1A6607T1	SOCKET(7P)	[MB]
CN401	RJT001H014	CONNECTOR(14P)	[MB]
CN411	RJU003K006M1	SOCKET(6P)	
CN412-414	RJU003K010M1	SOCKET(10P)	
CN415	RJS1A6604	SOCKET(4P)	
CN431	RJT001H003	CONNECTOR(3P)	[MB]
CN611	RJT003K006M1	CONNECTOR(6P)	
CN612-614	RJT003K010M1	CONNECTOR(10P)	
CN871	RJS1A6607T1	SOCKET(7P)	[MB]
CN891	RJS1A6607T1	SOCKET(7P)	[MB]
		EARTH TERMINAL(S)	
GND1	SUSD144	EARTH PLATE	

Ref. No.	Part No.	Part Name & Description	Remarks
GND601	SUSD144	EARTH PLATE	
GND871	RMC0184	EARTH PLATE	[MB]
		JACK(S)	
JK201	RJJ33T01	JACK, SYNCHRO EDIT	
JK301	T0TX174-A	JACK, OPTICAL OUT	
JK801	RJH3201N	JACK, LINE OUT	
JK871	QJA0455ZC-A	JACK, HEADPHONES	
		FUSE	
F1	XBA2C01TB0	FUSE, 250V T100mA	⚠
		<SERVO P.C.B.>	
		INTEGRATED CIRCUIT(S)	
IC6501	482220973234	I.C, PHOTO DIODE S.P.	[MB]
IC6503	482220973235	I.C, RADIAL ERROR S.P.	[MB]
IC6504	482220972587	I.C, FOCUS/RADIAL DRIVE	[MB]
		TRANSISTOR(S)	
Q6502	482213044121	TRANSISTOR	[MB]
		DIODE(S)	
D6505	482213030861	DIODE	[MB]
D6506	482213030861	DIODE	[MB]
		VARIABLE RESISTOR(S)	
VR3520	482210110685	V.R, LASER POWER ADJ.	[MB]
VR3569	482210011193	V.R, FOCUS OFFSET ADJ.	[MB]
		SWITCH	
S1001	482227612523	SW, TRAY	[MB]
		CONNECTOR(S)	
CN32	310410725084	CONNECTOR(2P)	[MB]
CN33	RJT001H007	CONNECTOR(7P)	[MB]
CN34	RJT001H014	CONNECTOR(14P)	[MB]
CN36	482226750676	CONNECTOR(14P)	[MB]

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

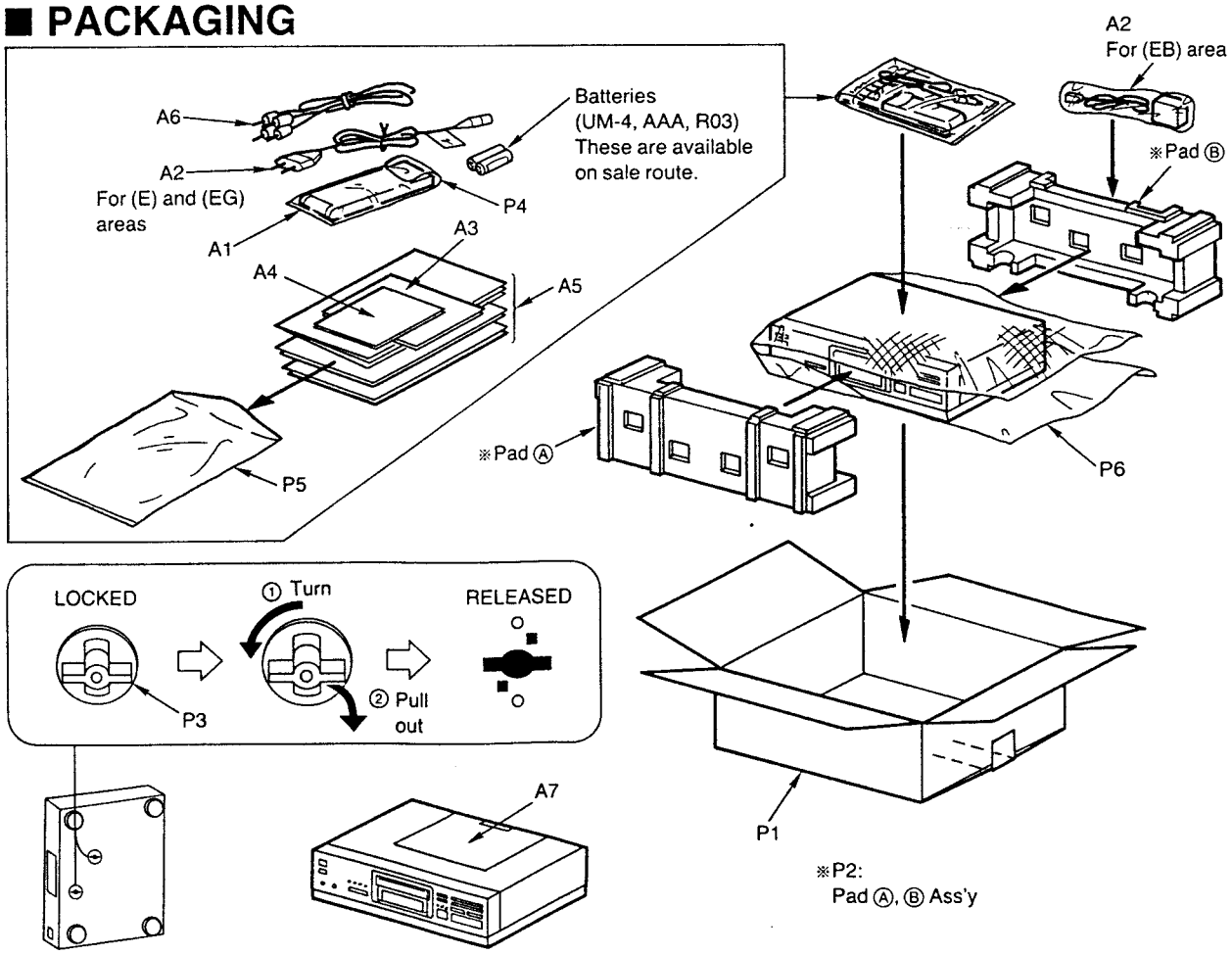
Ref. No.	Part No.	Values & Remarks
		RESISTORS
R11	ERDS2TJ182	1/4W 1.8K
R12, 13	ERDS2TJ102	1/4W 1K
R16, 17	ERDS2TJ103	1/4W 10K
R20	ERDS2TJ102	1/4W 1K
R23	ERDS2TJ222	1/4W 2.2K
R25	ERDS2TJ222	1/4W 2.2K
R31	ERDS2TJ221	1/4W 220
R32	ERDS2TJ103	1/4W 10K
R33, 34	ERDS2TJ221	1/4W 220
R35	ERDS2TJ102	1/4W 1K
R36	ERDS2TJ221	1/4W 220
R37	ERDS2TJ103	1/4W 10K
R38	ERDS2TJ822	1/4W 8.2K
R51	ERDS2TJ331	1/4W 330
R52	ERDS2TJ272T	1/4W 2.7K
R53, 54	ERDS2TJ472	1/4W 4.7K
R201	ERDS2TJ100	1/4W 10
R202	ERDS2TJ102	1/4W 1K
R203	ERDS2TJ273	1/4W 27K
R301	ERDS2TJ182	1/4W 1.8K
R302	ERDS2TJ823T	1/4W 82K
R303	ERDS2TJ104	1/4W 100K
R304	ERDS2TJ471	1/4W 470
R311	ERDS2TJ822	1/4W 8.2K
R312	ERDS2TJ331	1/4W 330
R315	ERDS2TJ104	1/4W 100K
R351	ERDS2TJ103	1/4W 10K
R352	ERDS2TJ104	1/4W 100K
R353	ERDS2TJ123	1/4W 12K
R354	ERDS2TJ104	1/4W 100K
R355, 356	ERDS2TJ333	1/4W 33K
R357	ERD25FJ6R8	1/4W 6.8 ⚠
R401	ERDS2TJ104	1/4W 100K
R402	ERDS2TJ473	1/4W 47K
R411, 412	ERDS2TJ472	1/4W 4.7K
R431, 432	ERDS2TJ223	1/4W 22K
R433	ERDS2TJ104	1/4W 100K
R434	ERDS2TJ224T	1/4W 220K
R435	ERDS2TJ104	1/4W 100K
R436	ERDS2TJ224T	1/4W 220K
R437, 438	ERDS2TJ223	1/4W 22K
R801-804	ERDS2TJ330	1/4W 33
R805-808	ERDS2TJ2R2T	1/4W 2.2
R809-812	ERDAS3G433T	1/4W 43K [MB]
R813-816	ERDAS3G563T	1/4W 56K
R817, 818	ERDS2TJ472	1/4W 4.7K
R819, 820	ERDS2TJ511	1/4W 510
R821, 822	ERDS2TJ105T	1/4W 1M
R823, 824	ERDS2TJ222	1/4W 2.2K
R825, 826	ERDS2TJ270T	1/4W 27
R827, 828	ERDS2TJ181T	1/4W 180
R829, 830	ERDS2TJ101	1/4W 100
R831, 832	ERDS2TJ331	1/4W 330
R833, 834	ERDS2TJ103	1/4W 10K
R835, 836	ERDS2TJ333	1/4W 33K
R837, 838	ERDS2TJ472	1/4W 4.7K
R839, 840	ERDS2TJ331	1/4W 330
R841, 842	ERDS2TJ102	1/4W 1K
R843, 844	ERDS2TJ181T	1/4W 180
R845, 846	ERDS2TJ563	1/4W 56K
R847, 848	ERDS2TJ271	1/4W 270
R849, 850	ERDS2TJ473	1/4W 47K
R851, 852	ERDS2TJ470	1/4W 47
R853	ERDS2TJ472	1/4W 4.7K
R854	ERDS2TJ223	1/4W 22K
R855-857	ERDS2TJ102	1/4W 1K
R858	ERDS2TJ101	1/4W 100
R859, 860	ERDS2TJ100	1/4W 10
R861	ERDS2TJ102	1/4W 1K
R862	ERDS2TJ472	1/4W 4.7K
R863	ERDS2TJ471	1/4W 470
R864	ERDS2TJ222	1/4W 2.2K
R865, 866	ERDS2TJ472	1/4W 4.7K
R871, 872	ERDS2TJ473	1/4W 47K
R873, 874	ERDS2TJ123	1/4W 12K
R875, 876	ERDS2TJ104	1/4W 100K
R885, 886	ERDS2TJ222	1/4W 2.2K
R887, 888	ERDS2TJ680T	1/4W 68
R889, 890	ERDS2TJ472	1/4W 4.7K
R891, 892	ERDS2TJ102	1/4W 1K
R897	ERDS2TJ103	1/4W 10K
R898	ERDS2TJ822	1/4W 8.2K
		CAPACITORS
C1-4	ECFTD103KXL	50V 0.01U
C10	ECFR1E104ZF5	25V 0.1U
C11	ECA1CM222B	16V 2200U ⚠
C12	ECA1CM222B	16V 2200U ⚠
C14, 15	ECEA0JKA470B	6.3V 47U
C16	ECEA1EU101	25V 100U
C17, 18	ECEA1HU101	50V 100U
C19, 20	ECEA1CKA101B	16V 100U
C31	ECEC1CV332RZ	16V 3300U ⚠[MB]
C32	ECEC1CV332RZ	16V 3300U ⚠[MB]
C33	ECFR1E104ZF5	25V 0.1U
C51	ECEA1AKA220B	10V 22U
C201, 202	ECBT1C103NS5	16V 0.01U
C301	ECBT1C103NS5	16V 0.01U
C302	ECBT1H270J5	50V 27P
C303, 304	ECFR1E104ZF5	25V 0.1U
C305	ECBT1H102KB5	50V 1000P
C306	ECFR1E223KB	25V 0.022U
C307	ECQV1H474JM3	50V 0.47U
C308	ECBT1H102KB5	50V 1000P
C309	ECFR1E104ZF5	25V 0.1U
C311	ECFR1E104ZF5	25V 0.1U
C312	ECBT1C103NS5	16V 0.01U
C351	ECBT1H102KB5	50V 1000P
C401	ECFR1E104ZF5	25V 0.1U
C402	ECEA0JKA470B	6.3V 47U
C404	ECFR1E104ZF5	25V 0.1U
C651, 652	ECBT1C102KB	16V 1000P
C801-804	ECQV1H683JM3	50V 0.068U
C805-808	ECBT1H121KB5	50V 120P
C809, 810	ECQV1H683JM3	50V 0.068U
C811, 812	ECBT1H102KB5	50V 1000P
C813-817	ECFR1E104ZF5	25V 0.1U
C818, 819	ECBT1H5R6K5	50V 5.6P
C820-822	ECFR1E104ZF5	25V 0.1U
C823, 824	ECEA1CN330S	16V 33U
C825, 826	ECEA1CKN220B	16V 22U
C827, 828	ECEA0JU331B	6.3V 330U
C829	ECEA0JKA101B	6.3V 100U
C830	ECEA1EKA4R7B	25V 4.7U
C831	ECEA1CKA100B	16V 10U
C832	ECEA0JU471	6.3V 470U
C871, 872	ECEA1EKN3R3B	25V 3.3U
C873, 874	ECQB1H103JF3	50V 0.01U
C875-879	ECBT1C103NS5	16V 0.01U
C881, 882	ECEA1AN101XB	10V 100U
C891	ECEA1CKA101B	16V 100U
C892	ECBT1C103NS5	16V 0.01U
C895	ECBT1C103NS5	16V 0.01U
		<SERVO P.C.B.>
		RESISTORS
R3501	482205024702	1/8W 4.7K [MB]
R3502	482205110104	1/8W 100K [MB]
R3505	482205110123	1/4W 12K [MB]
R3506	482205110101	1/8W 100 [MB]
R3507	482205120222	1/8W 2.2K [MB]
R3508	482205110243	1/4W 24K [MB]

Ref. No.	Part No.	Values & Remarks
R3509	482205110562	1/8W 5.6K [MB]
R3510	482205110103	1/8W 10K [MB]
R3521	482205110221	1/8W 220 [MB]
R3522	482205210229	1/3W 22 [MB]
R3523	482205210129	1/3W 12 [MB]
R3524	482205110101	1/8W 100 [MB]
R3530	482205110473	1/4W 47K [MB]
R3531	482205110153	1/4W 15K [MB]
R3533	482205110152	1/4W 5.1K [MB]
R3534	482205110224	1/8W 220K [MB]
R3535	482205021203	3/5W 12K [MB]
R3540	482205024708	3/5W 4.7 [MB]
R3541	482205110682	1/4W 6.8K [MB]
R3542	482205110829	1/8W 82 [MB]
R3543	482205110682	1/8W 6.8K [MB]
R3550	482205110182	1/4W 1.8K [MB]
R3555	482205110183	1/4W 18K [MB]
R3560	482211191494	1/8W 11K [MB]
R3561	482205110154	1/4W 150K [MB]
R3562	482205021204	3/5W 120K [MB]
R3563	482205110563	1/8W 56K [MB]
R3564	482211191495	1/8W 160K [MB]
R3565	482205210279	1/3W 27 [MB]
R3566	482205110229	1/8W 22 [MB]

Ref. No.	Part No.	Values & Remarks
R3567	482205028203	1/8W 82K [MB]
R3568	482205110474	1/4W 470K [MB]
		CHIP JUMPER(S)
R3801	482205110008	JUMPER [MB]
R3802	482205110008	JUMPER [MB]
		CAPACITORS
C2501	482212232863	50V 0.022U [MB]
C2502	482212440433	25V 47U [MB]
C2503	482212232863	50V 0.022U [MB]
C2504	482212231727	63V 470P [MB]
C2505	482212440433	25V 47U [MB]
C2506	482212233496	63V 0.1U [MB]
C2507	482212231644	63V 2200P [MB]
C2508	532212142491	100V 0.047U [MB]
C2509	482212231772	50V 47P [MB]
C2510	482212232442	50V 0.01U [MB]
C2511	482212231746	50V 1000P [MB]
C2513	482212143375	63V 0.22U [MB]
C2514	482212151252	63V 0.47U [MB]
C2515	482212231746	50V 1000P [MB]

Ref. No.	Part No.	Values & Remarks
C2520	482212231965	63V 220P [MB]
C2521	482212422027	25V 47U [MB]
C2530	482212151321	63V 8200P [MB]
C2531	482212151321	63V 8200P [MB]
C2532	482212440272	16V 33U [MB]
C2534	532212142661	63V 0.33U [MB]
C2535	482212231981	50V 0.033U [MB]
C2536	482212231981	50V 0.033U [MB]
C2537	482212143375	63V 0.22U [MB]
C2538	482212143375	63V 0.22U [MB]
C2540	482212441583	50V 0.68U [MB]
C2541	482212232863	50V 0.022U [MB]
C2542	482212232863	50V 0.022U [MB]
C2543	482212440196	16V 220U [MB]
C2544	482212440196	16V 220U [MB]
C2545	482212233496	63V 0.1U [MB]
C2546	482212233496	63V 0.1U [MB]
C2547	482212232863	50V 0.022U [MB]
C2552	482212143526	100V 0.047U [MB]
C2560	482212231784	50V 4700P [MB]
C2561	482212151252	63V 0.47U [MB]
C2562	532212142661	63V 0.33U [MB]
C2563	482212233496	63V 0.1U [MB]
C2625	482212231765	50V 100P [MB]

■ PACKAGING

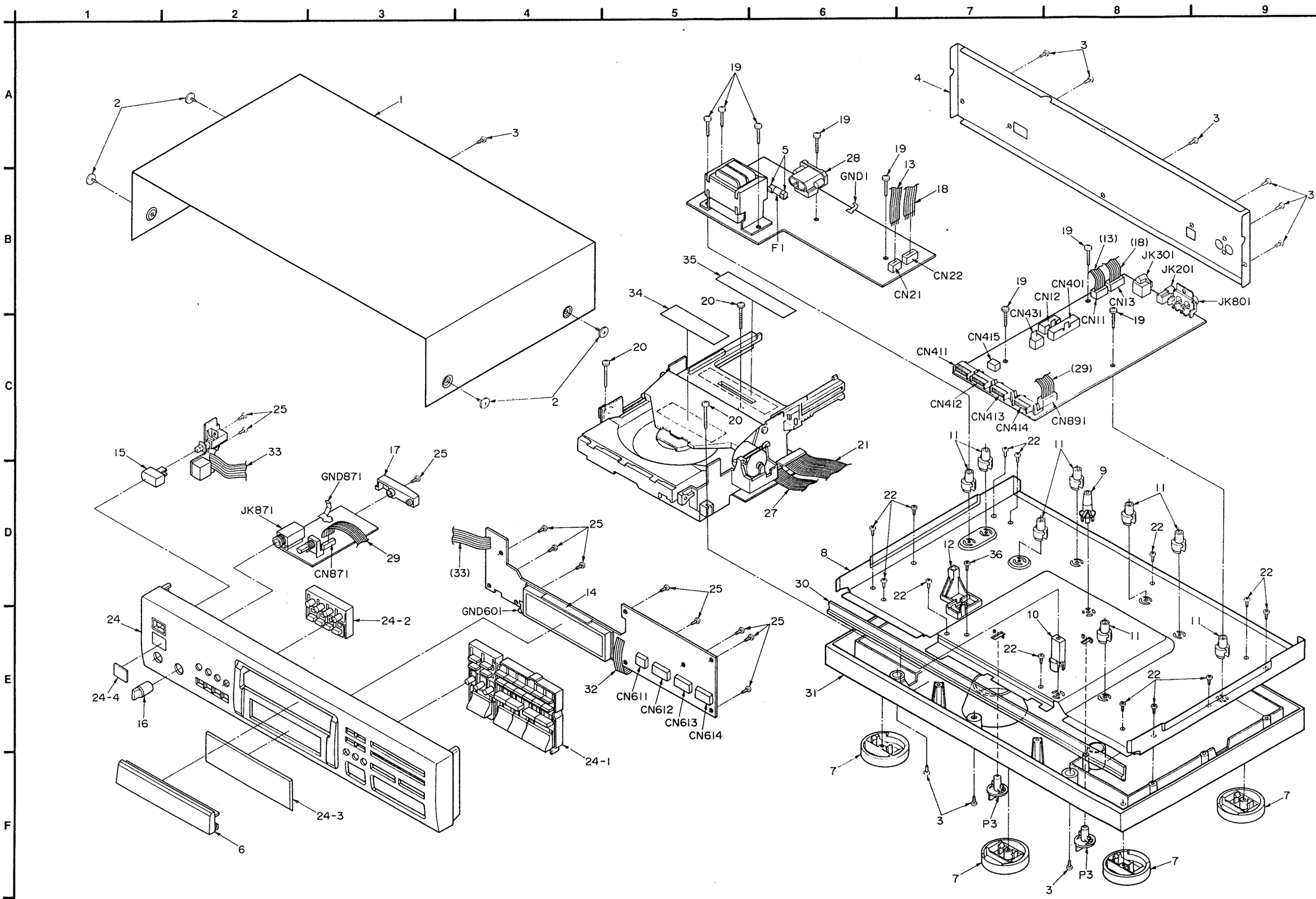


Note: The "(SF)" mark denotes the standard part.
*[MB]: indicates parts that are supplied by MBV.
[VRD]: indicates parts that are supplied by Video Recorder Division.

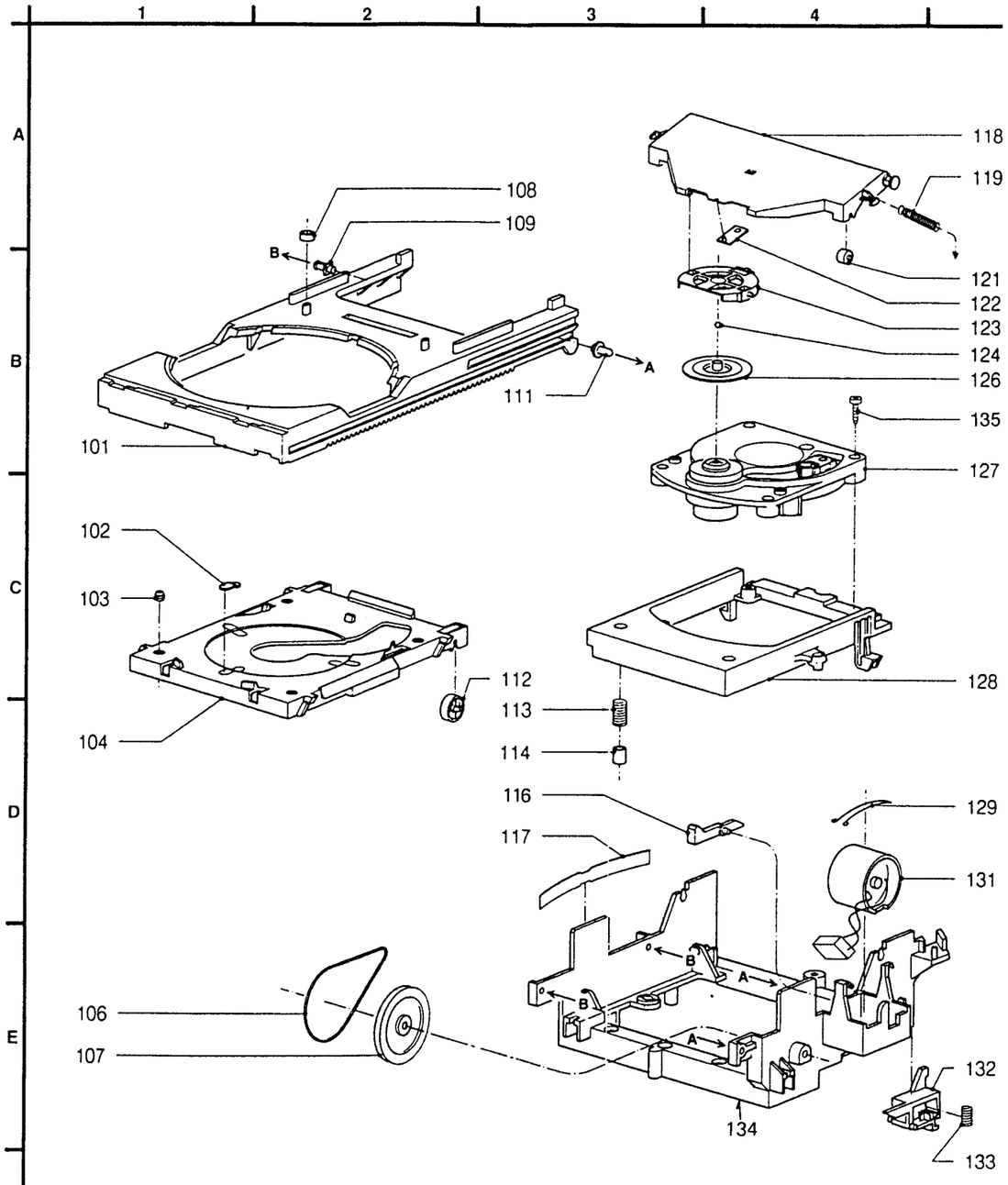
Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RKM0152-K	CABINET	[MB]
2	SNE2129-1	SCREW	
3	XTBS3+8JFZ1	SCREW	
4	RFKHLPS740AE	REAR PANEL	(E, EG) [MB]
4	RFKHLPS740AB	REAR PANEL	(EB) [MB]
5	EYF52BC	FUSE HOLDER	
6	RGK0537-K	TRAY LID	[MB]
7	RKA0040B	FOOT	[MB]
8	RMK0146-1	BOTTOM BOARD	[MB]
9	RMR0020	SPACER(A)	[MB]
10	RMR0021	SPACER(B)	[MB]
11	RMR0377-1	PCB SUPPORT	[MB]
12	RMR0573-K1	SPACER(C)	[MB]
13	RWJ6406110XX	FLAT CABLE(6P)	[MB]
14	RMR0658-K	FL HOLDER	[MB]
15	RGU0809-K	BUTTON, POWER	[MB]
16	RGW0048	KNOB, H. P. VOLUME	
17	RMR0657-K	H. P. PCB HOLDER	[MB]
18	RWJ6407110XX	FLAT CABLE(7P)	[MB]
19	XTB3+20JFZ	SCREW	
20	XTB3+35JFZ	SCREW	
21	REX0285	FLAT CABLE(14P)	[MB]
22	XTB3+8GFZ	SCREW	
24	RYP0399Z-K	FRONT PANEL ASS'Y	[MB]
24-1	RGU0873-K	BUTTON, PLAY etc.	[MB]
24-2	RGU0874A-K	BUTTON, DISC LINK etc.	[MB]
24-3	RKW0264A-R	FL PANEL	[MB]
24-4	RKW0265-B	FILTER	[MB]
25	XTBS26+8J	SCREW	
27	REX0007	FLAT CABLE(7P)	[MB]
28	SJS9236	AC INLET	⚠
29	RWJ6407480XX	FLAT CABLE(7P)	[MB]
30	RGK0510-T	ORNAMENT RUBBER	
31	RKU0048-K	BOTTOM BASE	[MB]
32	RWJ6404180XX	FLAT CABLE(4P) (FC613)	[MB]
33	RWJ6407150XX	FLAT CABLE(7P) (FC651)	[MB]
34	RQLS0022	LASER CAUTION LABEL	[MB]
35	RQLS0074	LASER CAUTION LABEL	[MB]
36	XTB3+8JFZ	SCREW	
		LOADING UNIT PARTS	
101	482244450603	DISC HOLDER	[MB]
102	482232550176	GROMMET, CABLE	[MB]
103	482232550177	GROMMET, CABLE	[MB]
104	482246692251	DISC TRAY	[MB]

Ref. No.	Part No.	Part Name & Description	Remarks
106	482235810115	DRIVE BELT	[MB]
107	482252232359	WHEEL, GEAR	[MB]
108	482253251518	RING, RUBBER	[MB]
109	482240261081	GUIDE	[MB]
111	482240261132	GUIDE	[MB]
112	482252890638	ROLLER	[MB]
113	482249251902	SPRING, COMPRES.	[MB]
114	482246661587	FOAM	[MB]
116	482240261107	LEVER	[MB]
117	482249263659	SPRING, BLADE	[MB]
118	482244460568	DISC LID	[MB]
119	482249232883	SPRING, TENSION	[MB]
121	482252890639	ROLLER	[MB]
122	482246692257	PLATE	[MB]
123	482240261207	HOLDER	[MB]
124	482252040177	SMALL BALL	[MB]
126	482253080503	RING, PRESSURE	[MB]
127	482269130209	OPTICAL PICKUP UNIT	[MB]
128	482240261196	SUPPORT	[MB]
129	482249263746	CLAMPING SPRING	[MB]
131	482236120998	LOADING MOTOR	[MB]
132	482240250244	BRACKET	[MB]
133	482249251935	SPRING, COMPRES.	[MB]
134	482270112729	CHASSIS	[MB]
135	251107650014	SCREW	[MB]
		PACKING MATERIALS	
P1	RPG1373	PACKING CASE	[MB]
P2	RPN0670	PAD	[MB]
P3	RMR0024	LOCK SHAFT	[MB]
P4	XZB26X17C03	PROTECTION COVER(REMOCON)	
P5	XZB23X35C03	PROTECTION COVER(F. B.)	
P6	XZB60X65A01Z	PROTECTION COVER(UNIT)	
		ACCESSORIES	
A1	EUR642100	REMOTE CONTROL TRANSMITTER	[MB]
A1-1	UR64EC1326	BATTERY COVER	[MB]
A2	RJA0019-2K	AC POWER SUPPLY CORD	⚠(E, EG) (SF) [VRD]
A2	VJA0733	AC POWER SUPPLY CORD	⚠(EB) (SF) [VRD]
A3	RQA0013	WARRANTY CARD	
A4	RQCB0169	SERVICE CENTER LIST	
A5	RFKSLPS740AE	INSTRUCTIONS MANUAL	(E) [MB]
A5	RQT1669-B	INSTRUCTIONS MANUAL	(EB) [MB]
A5	RFKSLPS740AG	INSTRUCTIONS MANUAL	(EG) [MB]
A6	SJP2249-3	STEREO CONNECTION CABLE	
A7	RQCA0059	LOCK CAUTION SHEET	[MB]

■ CABINET PARTS LOCATION



■ LOADING UNIT PARTS LOCATION



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